United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the Texas AgriLife Research

Soil Survey of Tyler County, Texas

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color—coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

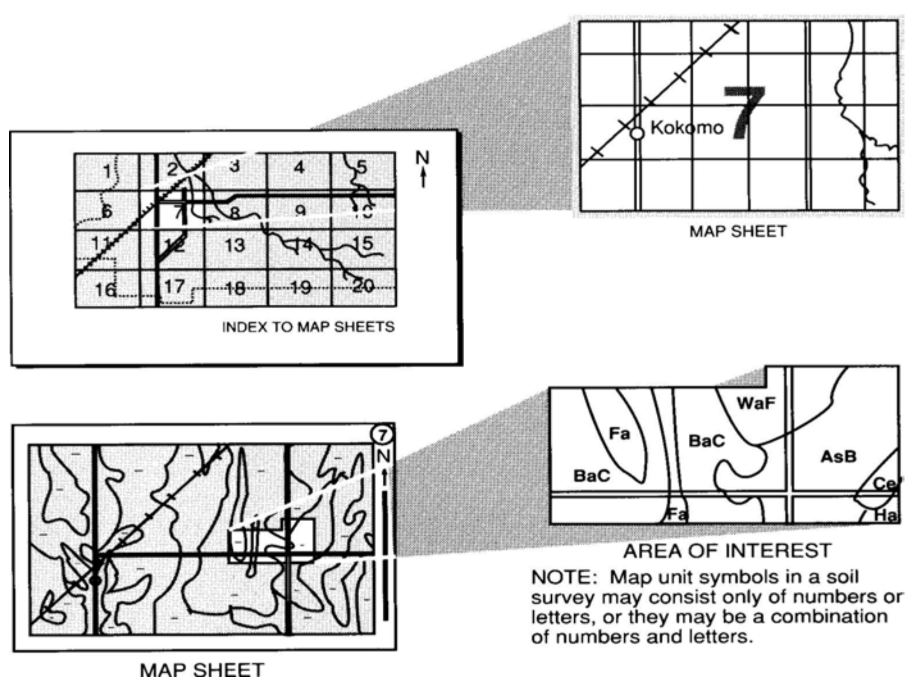
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2005. Soil names and descriptions were approved in 2005. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. This survey was made cooperatively by the Natural Resources Conservation Service and the Texas Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Upper Neches Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Private Lake on the Willis Geologic Formation.

Additional information about the Nation’s natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov

Contents

Issued 2008

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suitable for use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Texas Cooperative Extension.

Donald W. Gohmert

Donald W. Gohmert
State Conservationist
Natural Resources Conservation Service

Soil Survey of Tyler County, Texas

By Levi Steptoe, Jr., Natural Resources Conservation Services

Fieldwork by Lynn D. Gray, Joseph J. Castille, Kirby L. Griffith, Joel D. Bolin, Cherie D. Edwards, and Donald J. Sabo, soil scientists, Natural Resources Conservation Service, the Western Coastal Plain (MLRA 133B) part; Jonathan Wiedenfeld, Alan L. Stahnke, and Ricky E. Lambert, soil scientists, Natural Resources Conservation Service, the Western Gulf Coast Flatwoods (MLRA 152B) part

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Tyler County is located in southeast Texas and consists of about 937 square miles, or 600,044 acres (fig. 1). It is bordered on the east by Jasper County, on the south by Hardin County, on the west by Polk County, and on the north by Angelina County. The county seat is Woodville. Other towns and communities are Chester, Colmesneil, Rockland, Spurger, Fred, Warren, Hillister, and Doucette.

The elevation of Tyler County ranges from about 440 feet above sea level along the northern boundary to about 50 feet along the southern boundary.

Most of Tyler County is in the area known as the East Texas Timberlands. The topography generally is gently sloping to steeply sloping in the northern part, which has well-defined drainage patterns. The southern part of the county is nearly level to gently sloping, and part of it is in the Flatwoods area.

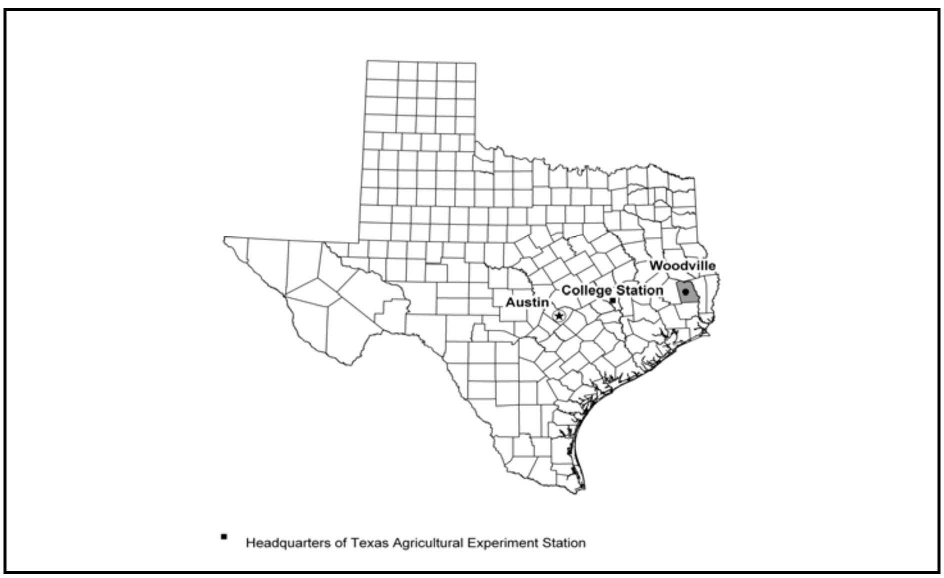

Figure 1.—Location of Tyler County, Texas.

The major farm enterprises in the county are timber and livestock production. About 65 percent of the county is managed as woodland, recreational areas, or wildlife habitat; 30 percent as improved pasture, hayland, or native pasture; and 5 percent as urban land or water.

The soils in the county formed on the Bentley, South Willis, North Willis, Fleming, and Catahoula Geological Formations.

General Nature of the Survey Area

This section provides general information about Tyler County. It describes history, natural resources, and climate.

History

Tyler County has the unique distinction of having been created and organized twice, under different names, with Town Bluff as the county seat in each case. The area embraced within the county was originally a part of the Nacogdoches District and later, when the Mexican State of Texas was divided into municipalities, it was a part of the Municipality of Bevil and later the Municipality of Jasper. After Independence, under the Republic of Texas, the area was part of Liberty County. In 1841, a larger area, of which Tyler County is now a part, was created for judicial purposes only, but the courts of the Republic held that a county so created was unconstitutional. After a few months operation with Town Bluff as the county seat, the county organization was abandoned.

In 1846, the Legislature of the State of Texas created the county again, with a reduced area, giving it the name Tyler in honor of President Tyler of the United States. This bill named six commissioners to select two or more sites to be voted upon for the county seat. The one on Dr. Josiah Wheat's survey in the forks of Turkey Creek won and the county seat was established and still remains.

The town was surveyed and laid out on 200 acres in lots and blocks. The names of men and places of that time are preserved in the name of the town and its principal streets. George T. Wood was the senator and N.B. Charlton was the member of the Lower House that passed the legislation creating the county. The town was named for the senator, Woodville, and the street immediately west of the courthouse for the representative. The street immediately south of the courthouse was named Wheat Street in honor of Dr. Wheat. The main street was the road to Town Bluff; thus it was named Bluff Street. Another important place was Peachtree Village, first location of the Alabama Indians in Texas.

The first courthouse was completed January 30, 1849. The second courthouse, a two-story frame building, was erected in 1856. In 1891 this one was removed and a brick three-story structure with a massive dome and clock was built. After serving the county for more than forty years, the building took on the modern appearance, which it bears today. In 1847 Woodville received a post office with James H. Fulgham as postmaster. Woodville Methodist Church was listed as a mission, with Action Young as the first pastor in the early 1850s. The Baptist church in the area, called Bethel Baptist, was established in 1851. In the early 1850s, two stage lines came through town, carrying mail two times a week.

After the Civil War, federal soldiers were stationed in Woodville for nine years under the command of Maj. L.A. Singer. Sawmills opened in Woodville and many other towns in Texas. Sawmilling dominated the life of the area through the first half of the twentieth century. In 1946, there were two mills at Woodville, and fifty cars of poles and pilings were shipped out each week. As late as 1965, the Woodville Lumber Company was the largest sawmill in the country, employing more than 100 workers and turning out over one-million board feet of lumber a month (fig. 2).

Figure 2.—Creosote poles being moved at a woodland treatment yard.

Natural Resources

Soil is one of the most important resources in Tyler County, along with oil, gas, and timber.

Tyler County lies between the East Texas Embayment to the north and the Houston Salt Dome Region to the south. However, it is in the Houston Salt Dome Region, which reaches into the southern part of Tyler County, where both oil and gas have been found. Oil and gas from the Houston Salt Dome structure are primarily produced from the Cenozoic rocks of the Wilcox group, which alternate from shale to sands. In Tyler County the average oil well depth ranges from 7,000 to 10,000 feet, though there are exceptions.

In recent years a new area of natural gas and oil in the Woodbine Formation has been developed in the northern part of Tyler County.

Additional mineral resources are volcanic ash and miscellaneous stones. Some gravel is available from river flood plains and the Goliad-Lissie sands in the southern part of the county.

Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Spurger Dam B in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is about 50 degrees F, and the average daily minimum temperature is 39 degrees. The lowest temperature on record, which occurred at Spurger Dam B on December 24, 1989, is 6 degrees. In summer, the average temperature is 81 degrees, and the average daily maximum temperature is

91 degrees. The highest temperature, which occurred at Spurger Dam B on September 1, 2000, is 109 degrees.

Growing degree days are shown in Table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 54 inches. Of this, about 40 inches, or 73 percent, usually falls in March through November. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 7.5 inches at Spurger Dam B on September 27, 1996. Thunderstorms occur on about 56 days each year, and most occur in July.

Snow and snowfall is not a major factor in Tyler County and happens as more of an oddity and temporary distraction.

The average relative humidity in mid-afternoon is about 58 percent. Humidity is higher at night, and the average at dawn is about 87 percent. The sun shines 73 percent of the time possible in summer and 52 percent in winter. The prevailing wind is from the South. Average wind speed is highest, about 10 miles per hour, in March.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from First Order station Shreveport, Louisiana.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil

characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Otanya-Kirbyville-Waller

Map Unit Composition

Percent of the survey area: 22 percent
- Otanya soils—33 percent
- Kirbyville soils—21 percent
- Waller soils—14 percent
- Minor soils—32 percent (Alazan, Belrose, Doucette, Kountze, Koury, Lelavale, Olive, Pinetucky, Sawlit, Silsbee, Tyden, Votaw, and Woodville)

Setting

Landscape: Coastal plain (fig. 3)
Landform: Otanya soils—side slopes; Kirbyville and Waller soils—flats
Geologic formation: Lissie Formation
Slope: Otanya soils—1 to 5 percent slopes; Kirbyville soils—0 to 2 percent slopes; Waller soils—0 to 1 percent slopes

Typical Profiles

Otanya

Surface layer: Dark grayish brown very fine sandy loam

Subsurface layer: Light yellowish brown, brown, and brownish yellow very fine sandy loam

Subsoil: Upper part—brownish yellow very fine sandy loam; middle part—brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and yellow; lower part—light brownish gray, pale brown, and brownish yellow sandy clay loam with redoximorphic concentrations and depletions in shades of red, yellow, and gray

Kirbyville

Surface layer: Dark grayish brown fine sandy loam with redoximorphic concentrations in shades of brown

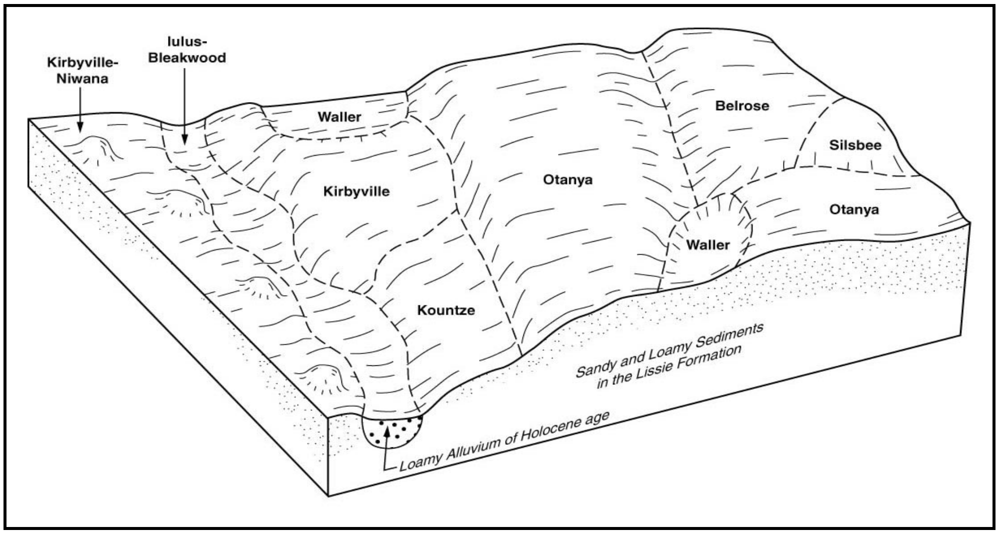

Figure 3.—Pattern of soils and underlying material in the Otanya-Kirbyville-Waller general soil map unit.

Subsurface layer: Upper part—dark grayish brown and light yellowish brown fine sandy loam; lower part—light yellowish brown fine sandy loam
Subsoil: Upper part—brownish yellow loam; middle part—yellowish brown loam; lower part—brownish yellow sandy clay loam

Waller

Surface layer: Dark gray silt loam with redoximorphic concentrations in shades of brown and black

Subsurface layer: Upper part—gray silt loam with redoximorphic concentrations in shades of brown, pink, and black; middle part—grayish brown and light brownish gray silt loam with redoximorphic concentrations in shades of brown, yellow, and black; lower part—light brownish gray and gray silt loam with redoximorphic concentrations in shades of brown, yellow, and black

Subsoil: Upper part—light brownish gray and gray loam with redoximorphic concentrations in shades of brown, yellow, and black; middle part—yellowish brown and light brownish gray clay loam with redoximorphic concentrations and depletions in shades of red, brown, yellow, and gray; lower part—yellowish brown and light gray sandy clay loam with redoximorphic concentrations and depletions in shades of red, brown, and gray

Properties and Qualities

Otanya

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Slow

Kirbyville

Depth class: Very deep
Drainage class: Moderately well drained

Flooding: None
Permeability: Very slow

Waller

Depth class: Very deep
Drainage class: Poorly drained
Flooding: None
Permeability: Very slow

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Otanya and Kirbyville soils—well suited; Waller soils—poorly suited
Management concerns: Waller soils—seasonable high water table, wetness

Woodland

Suitability: Otanya and Kirbyville soils—well suited; Waller soils—poorly suited
Management concerns: Otanya and Kirbyville soils—low strength; Waller soils—seasonable high water table, wetness

Urban land

Suitability: Otanya and Kirbyville soils—well suited; Waller soils—poorly suited
Management concerns: Waller soils—seasonable high water table, wetness

2. Shankler-Hillister-Doucette

Map Unit Composition

Percent of the survey area: 21 percent
- Shankler soils—30 percent
- Hillister soils—20 percent
- Doucette soils—15 percent
- Minor soils—35 percent (Alazan, Burkeville, Choates, Newco, Pinetucky, Redco, Stringtown, Sawlit, Urland, and Woodville)

Setting

Landscape: Coastal plain (fig. 4)
Landform: Interfluves
Geologic formation: Willis Formation
Slope: Shankler soils—1 to 15 percent slopes; Hillister soils—5 to 15 percent slopes; Doucette soils—1 to 5 percent slopes

Typical Profiles

Shankler

Surface layer: Dark grayish brown loamy sand

Subsurface layer: Upper part—brown loamy sand; middle part—pale brown and very pale brown loamy sand; lower part—very pale brown loamy fine sand and light yellowish brown fine sandy loam

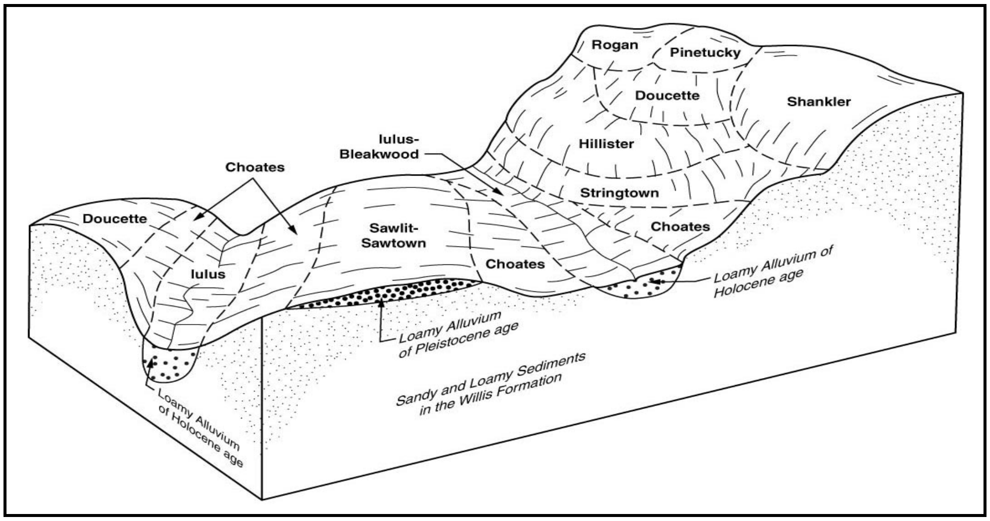

Figure 4.—Pattern of soils and underlying material in the Shankler-Hillister-Doucette general soil map unit.

Subsoil: Upper part—yellowish red fine sandy loam with redoximorphic concentrations in shades of red; lower part—red sandy clay loam with redoximorphic concentrations in shades of red and yellow

Hillister

Surface layer: Dark grayish brown loamy sand; moderately acid

Subsurface layer: Upper part—pale brown loamy sand; lower part—very pale brown loamy sand

Subsoil: Upper part—reddish yellow sandy clay loam; lower part—brownish yellow sandy clay loam

Substratum layer: Upper part—white, brownish yellow, light reddish brown, and dark red fine sandy loam; middle part—white, brownish yellow, dark red, and light gray fine sandy loam; lower part—white, red, brownish yellow, reddish brown, and strong brown fine sandy loam

Doucette

Surface layer: Brown loamy sand

Subsurface layer: Very pale brown loamy sand

Subsoil: Upper part—reddish yellow sandy clay loam; middle part—strong brown sandy clay loam; lower part—brownish yellow sandy clay loam

Properties and Qualities

Shankler

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Moderate

Hillister

Depth class: Deep
Drainage class: Well drained
Flooding: None
Permeability: Moderately slow

Doucette

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Moderate

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Well suited
Management concerns: Shankler and Hillister soils—wind and water erosion, slope, leaching of chemicals and fertilizers into groundwater

Woodland

Suitability: Well suited
Management concerns: Sandy surface textures, low strength, slope

Urban land

Suitability: Poorly suited
Management concerns: Caving of shallow excavations, pollution of groundwater by effluent, slope

3. Pinetucky-Doucette-Stringtown

Map Unit Composition

Percent of the survey area*:* 17 percent
Pinetucky soils—23 percent
Doucette soils—21 percent
Stringtown soils—18 percent
Minor soils—38 percent (Alazan, Belrose, Boykin, Burkeville, Kenefick, Kirbyville, Mollville, Newco, Ozias, Otanya, Redco, Rogan, Sawlit, Shankler, Urland, and Woodville)

Setting

Landscape: Coastal plain
Landform: Pinetucky and Doucette soils—interfluves; Stringtown soils—side slopes
Geologic formation: Willis Formation
Slope: Pinetucky soils—1 to 5 percent slopes; Doucette soils—1 to 5 percent slopes; Stringtown soils—5 to 15 percent slopes

Typical Profile

Pinetucky

Surface layer: Brown fine sandy loam

Subsurface layer: Yellowish brown fine sandy loam

Subsoil: Upper part—yellowish brown sandy clay loam with redoximorphic concentrations in shades of red; middle part—brownish yellow and yellow sandy clay loam with redoximorphic concentrations in shades of brown; lower part—light gray, dark red, and brownish yellow sandy clay loam

Doucette

Surface layer: Brown loamy fine sand

Subsurface layer: Light yellowish brown loamy fine sand

Subsoil: Upper part—reddish yellow sandy clay loam; middle part—strong brown sandy clay loam; lower part—brownish yellow sandy clay loam

Stringtown

Surface layer: Brown fine sandy loam

Subsurface layer: Brownish yellow sandy clay loam

Subsoil: Upper part—strong brown sandy clay loam; middle part—strong brown loam; lower part—yellowish red loam

Properties and Qualities

Pinetucky

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: None
Permeability: Moderately slow

Doucette

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Moderate

Stringtown

Depth class: Deep
Drainage class: Well drained
Flooding: None
Permeability: Slow

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Well suited
Management concerns: Wind and water erosion

Woodland

Suitability: Pinetucky and Doucette soils—well suited; Stringtown soils—suited
Management concerns: Low strength, sandy surface textures, sloughing, stones on the surface

Urban land

Suitability: Well suited
Management concerns: Caving of shallow excavations, slow permabilities affecting septic tank absorption fields

4. Rayburn-Colita-Corrigan

Map Unit Composition

Percent of the survey area*:* 8 percent
Rayburn soils—32 percent
Colita soils—30 percent
Corrigan soils—14 percent
Minor soils—24 percent (Alazan, Burkeville, Choates, Colmesneil, Doucette, Koury, Laska, Mollville, Newco, Pinetucky, Sawlit, and Shankler)

Setting

Landscape: Coastal plain (fig. 5)
Landform: Rayburn soils—side slopes; Colita and Corrigan soils—interfluves
Geologic formation: Catahoula Formation
Slope: Rayburn soils—5 to 15 percent slopes; Colita soils—1 to 3 percent slopes; Corrigan soils—1 to 15 percent slopes

Typical Profiles

Rayburn

Surface layer: Brown loam

Subsoil: Upper part—dark red clay; middle part—gray, dark reddish brown and reddish brown clay; lower part—light brownish gray with redoximorphic concentrations in shades of red

Substratum: Light brownish gray tuffaceous siltstone

Colita

Surface layer: Dark grayish brown fine sandy loam

Subsurface layer: Grayish brown fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil: Upper part—gray sandy clay loam with redoximorphic concentrations in shades of brown; lower part—dark gray, gray, pale yellow, and light gray sandy clay loam; very strongly acid

Substratum: Upper part—olive yellow, yellow, and dark gray silty clay loam; lower part—pale yellow silty clay loam

Corrigan

Surface layer: Dark brown loam

Subsoil: Light brownish gray clay with redoximorphic concentrations in shades of brown

Substratum: Pale brown and light brownish gray

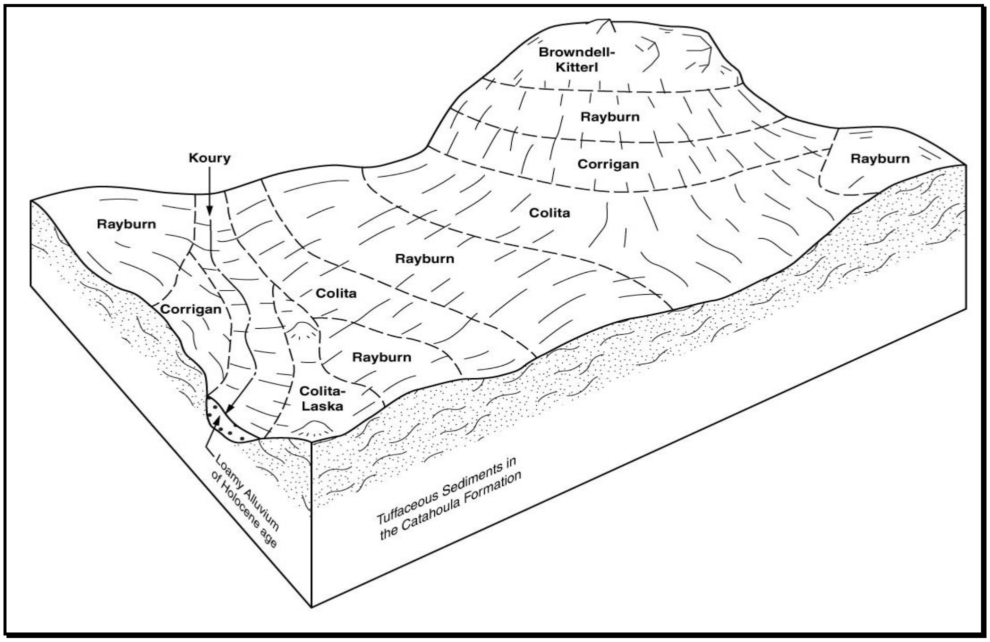

Figure 5.—Pattern of soils and underlying material in the Rayburn-Colita-Corrigan general soil map unit.

Properties and Qualities

Rayburn

Depth class: Deep to a paralithic layer
Drainage class: Moderately well drained
Flooding: None
Permeability: Very slow

Colita

Depth class: Deep to a paralithic layer
Drainage class: Somewhat poorly drained
Flooding: None
Permeability: Moderate

Corrigan

Depth class: Moderately deep to a paralithic layer
Drainage class: Moderately well drained
Flooding: None
Permeability: Very slow

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Suited
Management concerns: Rayburn soils—erosion, droughtiness; Colita soils—excess water; Corrigan soils—erosion, droughtiness, depth to bedrock

Woodland

Suitability: Suited
Management concerns: Rayburn soils—low strength, sticky when wet, slope; Colita soils—seasonal high water table, low strength, wetness; Corrigan soils—low strength, depth to bedrock, wetness, sticky when wet, slope

Urban land

Suitability: Poorly suited
Management concerns: Rayburn soils—severe shrink-swell, depth to bedrock, seasonal high water table, slope; Colita soils—seasonal high water table, depth to bedrock; Corrigan soils—seasonal high water table, severe shrink-swell, low strength, slope

5. Kenefick-Belrose-Votaw

Map Unit Composition

Percent of the survey area*:* 7 percent
Kenefick soils—26 percent
Belrose soils—22 percent
Votaw soils—18 percent
Minor soils—34 percent (Cypress, Kountze, Otanya, Sorter, Spurger, Turkey, and Tyden)

Setting

Landscape: Coastal plain
Landform: Kenefick soils—ridges; Belrose and Votaw soils—terraces
Geologic formation: Deweyville Formation
Slope: Kenefick soils—0 to 3 percent slopes; Belrose soils—1 to 3 percent slopes; Votaw soils—0 to 1 percent slopes

Typical Profiles

Kenefick

Surface layer: Brown fine sandy loam

Subsurface layer: Upper part—very pale brown fine sandy loam; lower part—very pale brown and strong brown fine sandy loam

Subsoil: Upper part—strong brown loam; middle part—yellowish red clay loam and yellowish red and reddish yellow sandy clay loam; lower part—brownish yellow fine sandy loam

Belrose

Surface layer: Brown loamy very fine sand

Subsoil: Upper part—very pale brown loamy very fine sand; middle part—very pale brown and reddish yellow very fine sandy loam with redoximorphic concentrations and depletions in shades of brown, yellow, and gray; lower part—brownish yellow, pale brown, light yellowish brown, and light brownish gray very fine sandy loam with redoximorphic concentrations and depletions in shades of red, brown, and gray

Votaw

Surface layer: Dark yellowish brown fine sand

Subsoil: Upper part—yellowish brown fine sand with redoximorphic concentrations in shades of brown; middle part—yellowish brown, pale brown, and light brownish gray fine sand with redoximorphic concentrations in shades of brown; lower part—brownish yellow, light brownish gray, and light gray fine sand with redoximorphic concentrations in shades of brown

Properties and Qualities

Kenefick

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Very slow

Belrose

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: None
Permeability: Moderately rapid

Votaw

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: Rare
Permeability: Moderately rapid

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Kenefick and Belrose soils—well suited; Votaw soils—poorly suited
Management concerns: Votaw soils—droughtiness

Woodland

Suitability: Well suited
Management concerns: Kenefick soils—low strength; Belrose soils—low strength, seasonal high water table; Votaw soils—low strength, sandy texture

Urban land

Suitability: Kenefick soils—well suited; Belrose soils—suited; Votaw soils—not suited
Management concerns: Kenefick soils—caving of shallow excavations, seasonal high water table; Belrose soils—caving of shallow excavations, seasonal high water table, high corrosivity to concrete; Votaw soils—hazard of flooding, high sand content, seasonal high water table

6. Iulus-Bleakwood

Map Unit Composition

Percent of the survey area*:* 7 percent
Iulus soils—45 percent
Bleakwood soils—45 percent

Minor soils—10 percent (Alazan, Belrose, Hainesville, Kirbyville, Laneville, Otanya, Ozias, Sawlit, and Votaw)

Setting

Landscape: Coastal plain
Landform: Flood plains
Geologic formation: Holocene age alluvium
Slope: 0 to 1 percent slopes

Typical Profiles

Iulus

Surface layer: Dark yellowish brown fine sandy loam

Subsoil: Upper part—yellowish brown fine sandy loam; middle part—brown fine sandy loam, brown and strong brown loam with redoximorphic depletions in shades of brown, gray, and black; lower part—light brownish gray fine sandy loam with redoximorphic concentrations and depletions in shades of brown, gray, and black

Bleakwood

Surface layer: Grayish brown loam with redoximorphic concentrations in shades of brown and yellow

Subsoil: Upper part—light brownish gray loam with redoximorphic concentrations in shades of yellow, brown, and black; middle parts—light brownish gray sandy clay loam with redoximorphic concentrations in shades of red, brown, and black; lower part—light brownish gray fine sandy loam with redoximorphic concentrations in shades of red and brown

Properties and Qualities

Iulus

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: Frequent
Permeability: Moderate

Bleakwood

Depth class: Very deep
Drainage class: Poorly drained
Flooding: Frequent
Permeability: Moderate

Land Use

Dominant use: Pasture and hayland
Other uses: Woodland

Pastureland

Suitability: Poorly suited
Management concerns: Severe hazard of flooding, sediment left on plants after flooding events

Woodland

Suitability: Poorly suited
Management concerns: Frequent flooding, standing water, low strength

Urban land

Suitability: Not suited
Management concerns: Severe flooding hazard

7. Ozias-Estes-Koury

Map Unit Composition

Percent of the survey area*:* 7 percent
Ozias soils—37 percent
Estes soils—23 percent
Koury soils—18 percent
Minor soils—22 percent (Alazan, Colita, Cypress, Hainesville, Iulus, Laneville, Laska, Mollville, Sawlit, and Votaw)

Setting

Landscape: Coastal plain
Landform: Flood plains
Geologic formation: Holocene alluvium
Slope: 0 to 1 percent slopes

Typical Profiles

Ozias

Surface layer: Very dark grayish brown clay

Subsoil: Upper part—grayish brown and dark grayish brown clay with redoximorphic concentrations in shades of brown; middle part—dark gray and gray clay with redoximorphic concentrations in shades of black and brown; lower part—grayish brown clay with redoximorphic concentrations in shades of brown

Estes

Surface layer: Brown clay with redoximorphic depletions in shades of gray

Subsoil: Upper part—light yellowish brown clay with redoximorphic depletions in shades of brown; middle part—grayish brown clay with redoximorphic concentrations in shades of brown; lower part—light brownish gray clay with redoximorphic concentrations in shades of brown

Koury

Surface layer: Brown very fine sandy loam

Subsoil: Upper part—brown and grayish brown loam; middle part—dark grayish brown very fine sandy loam; brown and pale brown loam with redoximorphic depletions in shades of gray and brown; lower part—light brownish gray very fine sandy loam with redoximorphic concentrations in shades of yellow

Properties and Qualities

Ozias

Depth class: Very deep
Drainage class: Somewhat poorly drained
Flooding: Frequent
Permeability: Very slow

Estes

Depth class: Very deep
Drainage class: Somewhat poorly drained
Flooding: Frequent
Permeability: Very slow

Koury

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: Frequent
Permeability: Moderately slow

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Poorly suited
Management concerns: Severe hazard of flooding, sediment left on plants after flooding events

Woodland

Suitability: Poorly suited
Management concerns: Frequent flooding, standing water, low strength

Urban land

Suitability: Not suited
Management concerns: Severe flooding hazard, clayey textures, high shrink-swell

8. Burkeville-Woodville-Redco

Map Unit Composition

Percent of the survey area*:* 6 percent
- Burkeville soils—31 percent
- Woodville soils—25 percent
- Redco soils—21 percent
- Minor soils—23 percent (Alazan, Boykin, Choates, Doucette, Hainesville, Hillister, Newco, Pinetucky, Stringtown, and Urland)

Setting

Landscape: Coastal plain (fig. 6)
Landform: Burkeville and Woodville soils—interfluves; Redco soils—interfluves and side slopes
Geologic formation: Fleming Formation
Slope: Burkeville soils—3 to 15 percent slopes; Woodville soils—1 to 15 percent slopes; Redco soils—1 to 3 percent slopes and 5 to 15 percent slopes

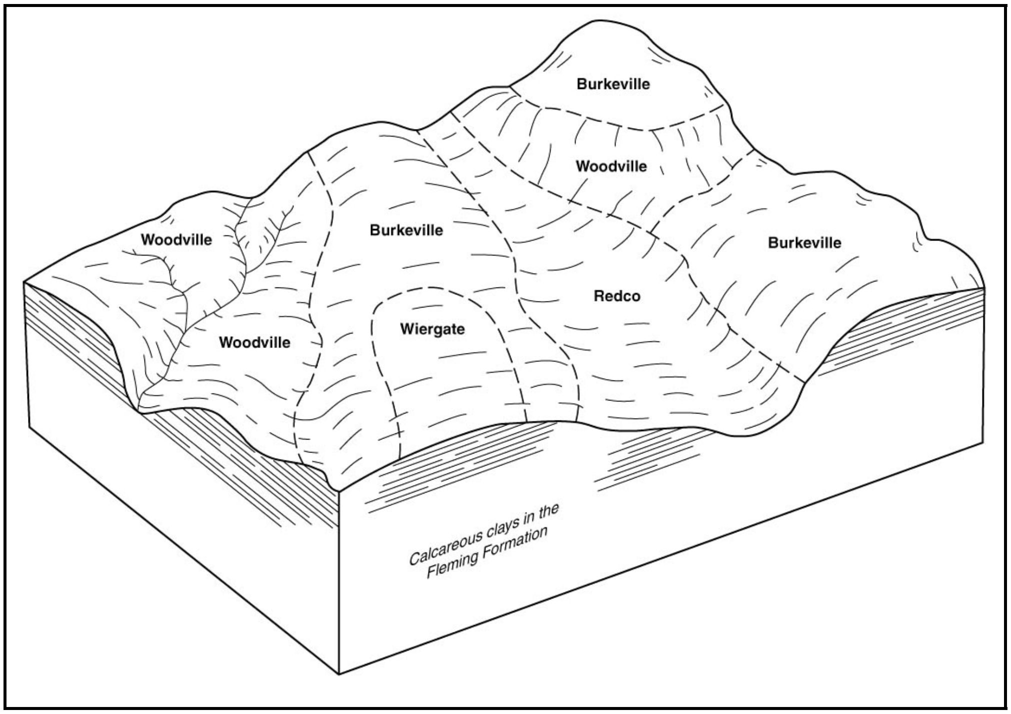

Figure 6.—Pattern of soils and underlying material in the Burkeville-Woodville-Redco general soil map unit.

Typical Profiles

Burkeville

Surface layer: Black clay

Subsoil: Upper part—very dark gray and very dark grayish brown clay; middle part—gray and light olive gray clay; lower part—light gray clay

Woodville

Surface layer: Brown very fine sandy loam

Subsurface layer: Pale brown very fine sandy loam

Subsoil: Upper part—yellowish red clay; middle part—red clay; lower part—light gray clay

Redco

Surface layer: Brown clay

Subsoil: Upper part—grayish brown clay; lower part—light gray clay

Properties and Qualities

Burkeville

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Very slow

Woodville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Flooding: None
Permeability: Very slow

Redco

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Very slow

Land Use

Dominant use: Pasture and hayland
Other uses: Woodland

Pastureland

Suitability: Suited
Management concerns: Burkeville and Redco soils—erosion, removal of excess water; Woodville soils—removal of excess water

Woodland

Suitability: Burkeville—poorly suited; Woodville and Redco soils—suited
Management concerns: Burkeville soils—alkaline reaction, low strength, sticky when wet; Woodville soils—low strength, sticky when wet; Redco soils—low strength, sticky when wet, slope

Urban land

Suitability: Poorly suited
Management concerns: Burkeville and Redco soils—severe shrink-swell, high clay content, very slow permeability; Woodville soils—severe shrink-swell, high clay content, very slow permeability, low strength

9. Sawlit-Woodville-Mollville

Map Unit Composition

Percent of the survey area*:* 3 percent
- Sawlit soils—38 percent
- Woodville soils—24 percent
- Mollville soils—18 percent
- Minor soils—20 percent (Alazan, Burkeville, Choates, Colita, Hainesville, Hillister, Iulus, Newco, Pinetucky, Redco, and Votaw)

Setting

Landscape: Coastal plain
Landform: Sawlit soils—depressions; Woodville soils—interfluves; Mollville soils—stream terraces
Geologic formation: Fluvatile terraces
Slope: Sawlit soils—1 to 3 percent slopes; Woodville soils—1 to 15 percent slopes; Mollville soils—0 to 1 percent slopes

Typical Profile

Sawlit

Surface layer: Dark brown fine sandy loam

Subsurface layer: Light brown fine sandy loam with redoximorphic concentrations and depletions in shades of brown and gray

Subsoil: Upper part—light brownish gray, reddish yellow, and light brown sandy clay loam with redoximorphic concentrations in shades of red and brown; middle part—red, strong brown, white, and light brown clay loam with redoximorphic concentrations in shades of red and brown; lower part—white clay with redoximorphic concentrations in shades of red, brown, and yellow

Woodville

Surface layer: Dark grayish brown and brown loam

Subsoil: Upper part—brownish yellow, red, light gray, and white clay; middle part—yellow, dark red, and white clay; lower part—white clay

Mollville

Surface layer: Brown loam

Subsurface layer: Light brownish gray loam with redoximorphic concentrations and depletions in shades of brown and gray

Subsoil: Upper part—light gray, light brownish gray, and gray loam with redoximorphic concentrations in shades of brown; middle part—light gray and light brownish gray silty clay loam and clay with redoximorphic concentrations in shades of brown; light brownish gray silty clay loam with redoximorphic concentrations in shades of brown and yellow; lower part—light gray and light brownish gray silty clay loam with redoximorphic concentrations in shades of brown and yellow

Properties and Qualities

Sawlit

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: None
Permeability: Very slow

Woodville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Flooding: None
Permeability: Very slow

Mollville

Depth class: Very deep
Drainage class: Poorly drained
Flooding: None
Permeability: Slow

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Sawlit soils—well suited; Woodville and Mollville soils—suited
Management concerns: Woodville soils—removal of excess water; Mollville soils—removal of excess water

Woodland

Suitability: Sawlit soils—well suited; Woodville and Mollville soils—suited
Management concerns: Sawlit soils—low strength, sticky when wet; Woodville soils—low strength, sticky when wet; Mollville soils—seasonal high water table, standing water, low strength

Urban land

Suitability: Sawlit and Woodville soils—poorly suited; Mollville soils—not suited
Management concerns: Sawlit soils—seasonal high water table, wetness, shrink-swell, low strength; Woodville soils—severe shrink-swell, high clay content, very slow permeability, low strength; Mollville soils—standing water, ponding, shrink-swell, low strength

10. Dallardsville-Otanya-Kountze

Map Unit Composition

Percent of the survey area: 2 percent
Dallardsville soils—40 percent
Otanya soils—32 percent
Kountze soils—14 percent
Minor soils—14 percent (Kenefick, Kirbyville, Nona, Stringtown, Silsbee, and Tyden)

Setting

Landscape: Coastal plain
Landform: Dallardsville soils—Flats and pimple mounds; Otanya soils—side slopes; Kountze soils—ridges
Geologic formation: Lissie Formation
Slope: Dallardsville soils—0 to 1 percent slopes; Otanya soils—1 to 5 percent slopes; Kountze soils—0 to 2 percent slopes

Typical Profile

Dallardsville

Surface layer: Brown very fine sandy loam

Subsurface layer: Upper part—yellowish brown very fine sandy loam; lower part—light yellowish brown and reddish yellow very fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil: Upper part—reddish yellow and light yellowish brown loam with redoximorphic concentrations in shades of red, brown, and yellow; middle part—brownish yellow and pale brown loam with redoximorphic concentrations and depletions in shades of red, brown, yellow, and gray; lower part—brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown

Otanya

Surface layer: Dark grayish brown very fine sandy loam

Subsurface layer: Light yellowish brown, brown, and brownish yellow very fine sandy loam

Subsoil: Upper part—brownish yellow very fine sandy loam; middle part—brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and yellow; lower part—light brownish gray, pale brown, and brownish yellow sandy clay loam with redoximorphic concentrations and depletions in shades of red, yellow, and gray

Kountze

Surface layer: Brown fine sandy loam with redoximorphic concentrations in shades of brown

Subsurface layer: Upper part—light yellowish brown fine sandy loam with redoximorphic concentrations in shades of brown and black; lower part—light yellowish brown and brownish yellow fine sandy loam with redoximorphic concentrations and depletions in shades of red, brown, yellow, gray, and black

Subsoil: Upper part—brownish yellow and light yellowish brown fine sandy loam with redoximorphic concentrations and depletions in shades of red, brown, gray, and black; middle part—brownish yellow, light yellowish brown, and light brownish gray fine sandy loam with redoximorphic concentrations and depletions in shades of red and yellow; lower part—brownish yellow, light brownish gray, and light yellowish brown fine sandy loam with redoximorphic concentrations and depletions in shades of red and yellow

Properties and Qualities

Dallardsville

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: None
Permeability: Very slow

Otanya

Depth class: Very deep
Drainage class: Well drained
Flooding: None
Permeability: Slow

Kountze

Depth class: Very deep
Drainage class: Moderately well drained
Flooding: None
Permeability: Slow

Land Use

Dominant use: Woodland
Other uses: Pasture and hayland

Pastureland

Suitability: Dallardsville—not suited; Otanya and Kountze soils—well suited

Management concerns: Dallardsville soils—seasonal high water table, wetness

Woodland

Suitability: Well suited
Management concerns: Dallardsville soils—seasonal high water table, low strength; Otanya soils—low strength; Kountze soils—low strength, wetness

Urban land

Suitability: Dallardsville and Kountze soils—poorly suited; Otanya soils—suited
Management concerns: Dallardsville soils—seasonal high water table, low strength; Otanya soils—seasonal high water table; Kountze soils—seasonal high water table, wetness, permeability

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. Some of the map unit depths are not the same depths as in the Taxonomic Unit section, for that particular series. The depths do not impact soil interpretations. A different pedon was used for the map unit, while another pedon was used for the taxonomic unit. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Woodville fine sandy loam, 5 to 15 percent slopes is a phase of the Woodville series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Mollville-Besner complex, 0 to 1 percent slopes is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example.

Table 4 lists the map units in this survey area. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The “Glossary” defines many of the terms used in describing the soils.

AaB—Alazan very fine sandy loam, 0 to 4 percent slopes

Map Unit Composition

Major Components:
Alazan and similar soils: 95 percent

Contrasting inclusions:
Mollville soils: 5 percent. Mollville soils are in lower, wetter depressions, and are poorly drained.

Component Description

Alazan

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Drainageways
Parent material: Loamy alluvium
Slope: 0 to 4 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 8.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 18 to 30 inches, apparent; from January to April
Runoff class: Very low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, yellowish brown very fine sandy loam

Subsurface layer:
4 to 12 inches—very strongly acid, pale brown very fine sandy loam

12 to 18 inches—very strongly acid, pale brown very fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:

18 to 26 inches—very strongly acid, yellowish brown sandy clay loam, and pale brown fine sandy loam with redoximorphic depletions in shades of gray

26 to 41 inches—very strongly acid, light yellowish brown sandy clay loam, and pale brown fine sandy loam with redoximorphic concentrations in shades of brown

41 to 50 inches—very strongly acid, light brownish gray sandy clay loam, and pale brown fine sandy loam with redoximorphic concentrations in shades of red and brown

50 to 68 inches—very strongly acid, light brownish gray sandy clay loam, and pale brown fine sandy loam with redoximorphic concentrations in shades of red and brown

68 to 80 inches—very strongly acid, yellowish brown and red sandy clay loam, and light brownish gray and pale brown fine sandy loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

Pastureland

- This soil is well suited to pasture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

Building Sites

- This soil is poorly suited to building site development, and structures may need special designs to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and can reduce the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

BcA—Belrose-Caneyhead complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Belrose and similar soils: 50 to 60 percent
Caneyhead and similar soils: 30 to 40 percent

Contrasting inclusions:
Babco soils: 0 to 5 percent. Babco soils have a spodic horizon and are on mounds and meandering ridges.
Kenefick soils: 1 to 20 percent. Kenefick soils have a fine-loamy particle-size control section and are on similar landscape positions.
Spurger soils: 1 to 20 percent: Spurger soils have a fine particle-size control section and are on similar landscape positions.
Tyden soils: 0 to 5 percent. Tyden soils are very poorly drained and are on lower landscape positions.
Votaw soils: 1 to 20 percent. Votaw soils are sandy throughout and are on similar to higher landscape positions.

Component Description

Belrose

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Ridge on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid (About 2.0 in/hr)
Available water capacity: Low (About 5.1 inches)
Shrink-swell potential: Low (About 0.7 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 28 to 36 inches, apparent; from January to May, and October to December
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown loamy very fine sand

Subsoil:
5 to 13 inches—very strongly acid, yellowish brown loamy very fine sand
13 to 20 inches—strongly acid, yellowish brown loamy very fine sand
20 to 31 inches—strongly acid, yellowish brown and very pale brown loamy very fine sand
31 to 44 inches—strongly acid, brownish yellow and very pale brown loamy very fine sand with redoximorphic concentrations in shades of yellow and brown, and depletions in shades of gray
44 to 63 inches—strongly acid, very pale brown and brownish yellow loamy very fine sand with redoximorphic concentrations in shades of yellow and brown, and depletions in shades gray

63 to 75 inches—strongly acid, brownish yellow and very pale brown very fine sandy loam with redoximorphic concentrations in shades of red, and depletions in shades of gray
75 to 80 inches—very strongly acid, very pale brown and reddish yellow loamy fine sand with redoximorphic concentrations in shades of brown, and depletions in shades of gray

Caneyhead

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Swale on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 11.4 inches)
Shrink-swell potential: Moderate (About 4.0 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from the surface to a depth of 6 inches
Depth to seasonal water saturation: At the surface from January to June, and December
Runoff class: Negligible
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 4 inches—strongly acid, grayish brown silt loam

Subsurface layer:
4 to 18 inches—very strongly acid, light brownish gray silt loam
18 to 27 inches—very strongly acid, light gray loam

Subsoil:
27 to 43 inches—very strongly acid, light gray loam
43 to 61 inches—extremely acid, light gray clay loam
61 to 80 inches—extremely acid, light gray and pale yellow silt loam

Use and Management Considerations

Cropland

- Prime farmland if drained.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- These soils are not suited to pasture because of wetness.

Woodland

- Standing water on the Caneyhead soil can inhibit the growth of some species of seedlings by restricting root respiration.

- The low strength of the Caneyhead soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Ponding on the Caneyhead soils restricts the safe use of roads by log trucks.
- Uncontrolled burning may destroy organic matter.

Building Sites

- The Caneyhead soil is not suited to building site development.
- Water tends to pond on the Caneyhead soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The Caneyhead soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.

BiB—Belrose loamy very fine sand, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Belrose and similar soils: 80 to 90 percent

Contrasting Inclusions:
Babco soils: 0 to 5 percent. Babco soils have a spodic horizon and are on mounds and meandering ridges.
Kenefick soils: 1 to 20 percent. Kenefick soils have a fine-loamy particle-size control section and are on similar landscape positions.
Tyden soils: 0 to 5 percent. Tyden soils are very poorly drained and are on lower landscape positions.
Votaw soils: 1 to 20 percent. Votaw soils are sandy throughout and are on similar to higher landscape positions.

Component Description

Belrose

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Ridge on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid (About 2.0 in/hr)
Available water capacity: Moderate (About 7.1 inches)
Shrink-swell potential: Low (About 0.2 LEP)
Flooding hazard: None
Ponding hazard: None

Depth to seasonal water saturation: At a depth of 28 to 36 inches, apparent; from January to May, and October to December
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown loamy very fine sand

Subsoil:
5 to 13 inches—very strongly acid, yellowish brown loamy very fine sand
13 to 20 inches—strongly acid, yellowish brown loamy very fine sand
20 to 31 inches—strongly acid, yellowish brown and very pale brown loamy very fine sand
31 to 44 inches—strongly acid, brownish yellow, and very pale brown loamy very fine sand with redoximorphic concentrations in shades of yellow and brown, and depletions in shades gray
44 to 63 inches—strongly acid, very pale brown and brownish yellow loamy very fine sand with redoximorphic concentrations in shades of yellow and brown, and depletions in shades gray
63 to 75 inches—strongly acid, brownish yellow and very pale brown very fine sandy loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
75 to 80 inches—very strongly acid, very pale brown and reddish yellow loamy fine sand with redoximorphic concentrations in shades of brown, and depletions in shades of gray

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- This soil is well suited to pasture.

Woodland

- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Operation of harvesting equipment may be difficult and result in damage because of the low strength of the soil.
- Uncontrolled burning may destroy organic matter.

Building Sites

- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- This soil is not suitable for use as septic tank absorption fields because of depth to a saturated zone, seepage, and poor filtering capacity.

Local Roads and Streets

- This soil is well suited to this use.

BoB—Boykin loamy sand, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Boykin and similar soils: 85 percent

Contrasting Inclusions:
Doucette soils: 5 percent. Doucette soils contain 5 to 20 percent plinthite in the Bt horizons. Doucette soils are on smoother and flatter slopes usually slightly lower in the landscape.
Pinetucky soils: 5 percent. Pinetucky soils lack sandy epipedons 20 to 40 inches thick. Pinetucky soils contain more than 15 percent concretions of ironstone.
Shankler soils: 5 percent. Shankler soils have sandy surface layers more than 40 inches thick.

Component Description

Boykin

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy marine deposits
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 6.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 3s

Typical Profile

Surface layer:
0 to 8 inches—moderately acid, brown loamy sand

Subsurface layer:
8 to 22 inches—moderately acid, brown loamy sand
22 to 28 inches—moderately acid, pale brown loamy sand and light yellowish brown fine sandy loam

Subsoil:
28 to 32 inches—moderately acid, yellowish red sandy clay loam
32 to 80 inches—moderately acid, red sandy clay loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- This soil is well suited to use as building sites.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

BrC—Browndell-Kitterll complex, 2 to 5 percent slopes

Map Unit Composition

Major Components:
Browndell and similar soils: 55 percent
Kitterll and similar soils: 35 percent

Contrasting Inclusions:
Corrigan soils: 10 percent. Corrigan soils have a solum more than 20 inches thick.

Component Description

Browndell

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Ridge

Parent material: Acid loamy residuum
Slope: 2 to 5 percent
Surface fragments: None
Depth to restrictive feature: 14 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Very low (About 2.0 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Very high
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, very dark grayish brown loam

Subsoil:
4 to 9 inches—very strongly acid, dark grayish brown clay
9 to 14 inches—very strongly acid, light brownish gray and light brownish gray clay with few discontinuous clay films

Substratum:
14 to 18 inches—very strongly acid, light brownish gray tuffaceous sandstone and dark grayish brown silty clay, with few discontinuous clay films, and redoximorphic concentrations in shades of brown
18 to 24 inches—very strongly acid, light brownish gray tuffaceous sandstone and very dark grayish brown silty clay, with redoximorphic concentrations in shades of yellow
24 to 30 inches—extremely acid, light brownish gray strongly cemented tuffaceous sandstone

Kitterll

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Ridge
Parent material: Acid loamy residuum
Slope: 2 to 5 percent
Surface fragments: None
Depth to restrictive feature: 4 to 14 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Very low (About 1.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 7s

Typical Profile

Surface layer:
0 to 12 inches—very strongly acid, pale brown loamy sand

Substratum:
12 to 14 inches—very strongly acid, brownish yellow loamy sand
14 to 20 inches—very strongly acid, strong brown, dark yellowish brown, pale brown and light yellowish brown strongly cemented tuffaceous sandstone

Use and Management Considerations

Cropland

- The rooting depth of crops is restricted by bedrock and high clay content.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- These soils provide poor summer pasture.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The rooting depth of plants may be restricted by bedrock.

Woodland

- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- These soils become sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.
- Rock fragments obstruct the use of mechanical planting equipment.
- A loss of soil productivity may occur following an episode of uncontrolled fire.

Building Sites

- Severe shrinking and swelling of these soils may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The nature and depth of the soft bedrock in these soils can reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.

Septic Tank Absorption Fields

- These soils are not suitable for use as a site for septic tank absorption fields because of the very shallow or shallow depth to bedrock.

Local Roads and Streets

- The very shallow or shallow depth to soft bedrock affects the ease of excavation and grading.
- These soils may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of these soils is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

BrD—Browndell-Kitterll complex, stony, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Browndell and similar soils: 55 percent
Kitterll and similar soils: 35 percent

Contrasting Inclusions:
Corrigan soils: 10 percent. Corrigan soils have a solum more than 20 inches thick.

Component Description

Browndell

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Acid loamy residuum
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 14 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Very low (About 2.1 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Very high
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 5 inches—strongly acid, brown fine sandy loam

Subsurface layer:
5 to 9 inches—strongly acid, pale brown fine sandy loam with few discontinuous clay films

Subsoil:
9 to 17 inches—strongly acid, gray clay with few discontinuous clay films, and redoximorphic concentrations in shades of yellow and brown

Substratum:
17 to 24 inches—extremely acid, strongly cemented tuffaceous sandstone and pale yellow silty clay loam, with redoximorphic concentrations in shades of brown
24 to 37 inches—extremely acid, strongly cemented tuffaceous sandstone and pale yellow silty clay loam, with redoximorphic concentrations in shades of yellow

Kitterll

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Acid loamy residuum
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 4 to 14 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Very low (About 1.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 7s

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown fine sandy loam

Substratum:
5 to 8 inches—very strongly acid, light brownish gray fine sandy loam
8 to 15 inches—very strongly acid, dark brown strongly cemented tuffaceous sandstone

Use and Management Considerations

Cropland

- These soils are not suited to cropland.
- The rooting depth of crops is restricted by bedrock and high clay content.

Pastureland

- These soils provide poor summer pasture.
- The rooting depth of plants may be restricted by bedrock.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.

- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- These soils become sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.
- The slope creates unsafe operating conditions and can reduce the operating efficiency of log trucks, and may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Building Sites

- Severe shrinking and swelling of these soils may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The nature and depth of the soft bedrock in these soils can reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic Tank Absorption Fields

- These soils are not suitable for use as a site for septic tank absorption fields because of the very shallow or shallow depth to bedrock.

Local Roads and Streets

- The limited depth to soft bedrock affects the ease of excavation and grading.
- These soils may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of these soils is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the slope.

BrG—Browndell-Kitterll complex, 15 to 35 percent slopes, very bouldery

Map Unit Composition

Major Components:
Browndell and similar soils: 45 percent
Kitterll and similar soils: 40 percent

Contrasting Inclusions:
Corrigan: 10 percent. Corrigan soils are on slightly higher convex positions and have a thicker solum.
Rayburn soils: 5 percent. Rayburn soils are on slightly higher convex positions and have a thicker solum.

Component Description

Browndell

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Acid loamy residuum
Slope: 15 to 35 percent
Surface fragments: Boulders range from 0.1 to 3 percent on the surface
Depth to restrictive feature: 14 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Very low (About 2.2 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Very high
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 4 inches—strongly acid, brown fine sandy loam

Subsoil:
4 to 10 inches—very strongly acid, grayish brown loam with few discontinuous clay films
10 to 13 inches—very strongly acid, light olive brown silty clay with few discontinuous clay films
13 to 15 inches—very strongly acid, grayish brown and pale yellow silty clay

Substratum:
15 inches—very strongly acid, brown strongly cemented tuffaceous sandstone

Kitterll

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Acid loamy residuum
Slope: 15 to 35 percent
Surface fragments: None
Depth to restrictive feature: 4 to 14 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Very low (About 1.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 7s

Typical Profile

Surface layer:
0 to 4 inches—neutral, brown fine sandy loam

Substratum:
4 to 13 inches—moderately acid, brown fine sandy loam
13 to 20 inches—very strongly acid, light gray strongly cemented tuffaceous sandstone

Use and Management Considerations

Cropland

- These soils are not suited to cropland.
- The rooting depth of crops is restricted by bedrock and high clay content.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- These soils provide poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The rooting depth of plants may be restricted by bedrock.

Woodland (fig. 7)

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- These soils become sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, can reduce the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.
- Slope creates unsafe operating conditions and can reduce the operating efficiency of log trucks and restricts the use of equipment for preparing this site for planting and seeding.
- Rock fragments obstruct the use of mechanical planting equipment.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The nature and depth of the soft bedrock in these soils can reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- Slope severely limits the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Figure 7.—Boulders on an area of Browndell-Kitterll complex, 15 to 35 percent slopes, very bouldery. Boulders can be a problem harvesting timber and planting seedlings.

Septic Tank Absorption Fields

These soils are not suitable for use as a site for septic tank absorption fields because of the limited depth to bedrock.

Local Roads and Streets

- The limited depth to soft bedrock affects the ease of excavation and grading.
- These soils may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of these soils is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the slope.

BuB—Burkeville clay, 3 to 5 percent slopes

Map Unit Composition

Major Components:
Burkeville and similar soils: 95 percent

Contrasting Inclusions:
Woodville soils: 5 percent. Woodville soils have an argillic horizon and are on nearby landscapes.

Component Description

Burkeville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Clayey marine deposits
Slope: 3 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 6.6 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 5 inches—slightly acid, black clay

Subsoil:
5 to 10 inches—slightly acid, very dark gray clay
10 to 14 inches—slightly acid, very dark grayish brown clay
14 to 18 inches—slightly acid, gray clay
18 to 25 inches—neutral, light olive gray clay
25 to 80 inches—moderately alkaline, light gray clay

Use and Management Considerations

Cropland

- This soil is poorly suited to cropland.

Pastureland

- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Plant species that are adapted to high soil pH should be selected.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- The alkaline soil reaction may cause a nutrient imbalance in seedlings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, create unsafe conditions for log trucks, and can damage harvesting equipment.
- The stickiness of the soil can reduce the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of high shrink-swell properties.
- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

BuD—Burkeville clay, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Burkeville and similar soils: 95 percent

Contrasting Inclusions:
Woodville soils: 5 percent. Woodville soils have an argillic horizon and are on nearby landscapes.

Component Description

Burkeville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Clayey marine deposits
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 6.6 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 9 inches—slightly acid, very dark gray clay

Subsoil:
9 to 18 inches—slightly acid, gray clay
18 to 39 inches—moderately alkaline, light brownish gray clay
39 to 80 inches—moderately alkaline, light gray clay

Use and Management Considerations

Cropland

- This soil is not suited to cropland.

Pastureland

- Avoiding overgrazing can can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Plant species that are adapted to high soil pH should be selected.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The alkaline soil reaction in the soil may cause a nutrient imbalance in seedlings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the use of harvesting equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, can reduce the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.
- Steep slopes create unsafe operating conditions and can reduce the operating efficiency of log trucks; restricts the use of some mechanical planting equipment; and can reduce the efficiency of mechanical planting equipment.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- Steep slope requires special design, installation techniques are needed for the effluent distribution lines, and seepage of poorly treated effluent is a concern.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of the high shrink-swell.

- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the steeper slopes.

CgA—Chambliss loamy sand, 0 to 8 percent slopes

Map Unit Composition

Major Components:
Chambliss and similar soils: 88 percent

Contrasting Inclusions:
Boykin soils: 7 percent. Boykin soils are on similar landscape positions and have a loamy argillic horizon.
Doucette soils: 5 percent. Doucette soils are on similar landscape positions and have a loamy argillic horizon with greater than 5 percent iron masses.

Component Description

Chambliss

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Ridge
Parent material: Sandy marine deposits
Slope: 0 to 8 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 6.0 in/hr)
Available water capacity: Low (About 5.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Very low
Non-irrigated land capability: 3s

Typical Profile

Surface layer:
0 to 6 inches—very strongly acid, brown loamy sand

Subsoil:
6 to 11 inches—very strongly acid, reddish brown loamy sand
11 to 33 inches—very strongly acid, red loamy sand
33 to 80 inches—very strongly acid, red sandy loam

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.

- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- This soil is well suited to use as building sites.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- Special design and installation techniques are needed for the effluent distribution lines because of the slope.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

CiA—Choates loamy sand, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Choates and similar soils: 90 percent

Contrasting Inclusions:
Shankler soils: 10 percent. Shankler soils are on well drained higher positions. In addition, and Shankler soils have loamy fine sandy surface layers greater than 40 inches thick.

Component Description

Choates

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Drainageways
Parent material: Loamy marine deposits
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 7.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 18 to 30 inches, apparent; from January to March
Runoff class: Low
Non-irrigated land capability: 3w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, brown loamy sand

Subsurface layer:
4 to 16 inches—very strongly acid, pale brown loamy sand with redoximorphic concentrations in shades of yellow

Subsoil:
16 to 26 inches—very strongly acid, strong brown sandy clay loam with redoximorphic depletions in shades of gray
26 to 40 inches—very strongly acid, light brownish gray and strong brown sandy clay loam with redoximorphic concentrations in shades of red
40 to 61 inches—very strongly acid, light brownish gray sandy clay loam with redoximorphic concentrations in shades of red and brown
61 to 80 inches—very strongly acid, light brownish gray sandy clay loam with redoximorphic concentrations in shades of red and yellow

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- The soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.
- The resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving because of the high content of sand or gravel.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and can reduce the bearing capacity of this soil.

CkB—Colita fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Colita and similar soils: 85 percent

Contrasting Inclusions:
Rayburn soils: 10 percent. Rayburn soils are on similar positions, have clayey argillic horizons, a LEP greater than 9, or forms cracks within the upper meter.
Laska soils: 5 percent. Laska soils are on slightly convex ridges or mounds and are in shades of brown throughout.

Component Description

Colita

MLRA: 133B—Western Coastal Plain

Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy residuum
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 6.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 6 to 24 inches, perched; from January to April, and November to December
Runoff class: Negligible
Non-irrigated land capability: 3w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, dark grayish brown fine sandy loam

Subsurface layer:
4 to 17 inches—very strongly acid, grayish brown fine sandy loam with redoximorphic concentrations in shades of brown
17 to 25 inches—very strongly acid, grayish brown fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
25 to 38 inches—very strongly acid, gray sandy clay loam with redoximorphic concentrations in shades of brown
38 to 48 inches—very strongly acid, dark gray, gray, pale yellow, and light gray sandy clay loam

Substratum:
48 to 56 inches—very strongly acid, olive yellow, yellow, and dark gray silty clay loam
56 to 80 inches—very strongly acid, pale yellow strongly cemented tuffaceous sandstone that has silty clay loam texture

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- The soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- The limited depth to bedrock can reduce the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and can reduce the bearing capacity of this soil.

CkC—Colita-Laska complex, mounded, 0 to 3 percent slopes

Map Unit Composition

Major Components:
Colita and similar soils: 45 percent
Laska and similar soils: 35 percent

Contrasting Inclusions:
Corrigan soils: 10 percent. Corrigan soil is 20 to 40 inches over a paralithic contact with tuffaceous siltstone and sandstone and is on nearly similar landscapes.
Rayburn soils: 10 percent. Rayburn soils are on similar positions, have clayey argillic horizons, a LEP greater than 9, and forms cracks within the upper meter.

Component Description

Colita

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve depression
Parent material: Loamy residuum
Slope: 0 to 3 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 6.5 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Ponding hazard: None

Depth to seasonal water saturation: At a depth of 6 to 24 inches, perched; from January to April, and November to December
Runoff class: Negligible
Non-irrigated land capability: 3w

Typical Profile

Surface layer:
0 to 7 inches—strongly acid, dark grayish brown fine sandy loam

Subsurface layer:
7 to 16 inches—strongly acid, grayish brown very fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
16 to 26 inches—very strongly acid, gray and light gray loam with redoximorphic concentrations in shades of brown
26 to 42 inches—very strongly acid, light brownish gray and light gray loam with redoximorphic concentrations in shades of brown
42 to 50 inches—very strongly acid, very pale brown, light yellowish brown, grayish brown, and gray loam
50 to 56 inches—very strongly acid, light brownish gray and very pale brown loam with redoximorphic concentrations in shades of brown

Substratum:
56 to 65 inches—very strongly acid, strongly cemented tuffaceous sandstone that has silty clay loam texture, with few faint discontinuous clay films and redoximorphic concentrations in shades of brown
65 to 80 inches—very strongly acid, light yellowish brown strongly cemented tuffaceous sandstone that has silty clay loam texture

Laska

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve mound
Parent material: Loamy residuum
Slope: 0 to 3 percent
Surface fragments: None
Depth to restrictive feature: Greater than 60 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid (About 2.0 in/hr)
Available water capacity: Moderate (About 7.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 36 inches, perched; from January to April, and December
Runoff class: Negligible
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 4 inches—strongly acid, brown fine sandy loam

Subsurface layer:
4 to 14 inches—very strongly acid, brown fine sandy loam very strongly acid

Subsoil:
25 to 38 inches—very strongly acid, very pale brown and brown fine sandy loam with redoximorphic concentrations in shades of brown, and depletions in shades of gray
38 to 47 inches—very strongly acid, brown and very pale brown fine sandy loam with redoximorphic concentrations in shades of yellow and brown
47 to 58 inches—very strongly acid, very pale brown, light brownish gray, and grayish brown fine sandy loam

Substratum:
58 to 76 inches—very strongly acid, gray, grayish brown, and light brownish gray strongly cemented tuffaceous sandstone that has sandy clay loam texture
76 to 80 inches—very strongly acid, light olive brown strongly cemented tuffaceous sandstone

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of these soils increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- These soils are poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- The limited depth to bedrock can reduce the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and can reduce the bearing capacity of this soil.

CmB—Colmesneil loamy sand, 1 to 8 percent slopes

Map Unit Composition

Major Components:
Colmesneil and similar soils: 90 percent

Contrasting Inclusions:
Doucette soils: 10 percent. Doucette soils have sandy epipedons greater than 20 inches thick.

Component Description

Colmesneil

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Ridge
Parent material: Sandy marine deposits
Slope: 1 to 8 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 6.0 in/hr)
Available water capacity: Low (About 5.4 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Very low
Non-irrigated land capability: 3s

Typical Profile

Surface layer:
0 to 7 inches—strongly acid, brown loamy sand

Subsoil:
7 to 13 inches—moderately acid, yellowish brown loamy sand
13 to 29 inches—slightly acid, brown loamy sand
29 to 47 inches—slightly acid, light yellowish brown, reddish yellow, and yellowish red loamy sand
47 to 66 inches—slightly acid, light yellowish brown and yellowish red loamy sand
66 to 79 inches—moderately acid, yellowish red and light yellowish brown fine sandy loam

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- This soil is well suited to use as building sites.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

CoB—Corrigan loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Corrigan and similar soils: 85 percent

Contrasting Inclusions:
Browndell soils: 10 percent. Browndell soils are on associated mid and lower slopes that are convex.
Kitterll soils: 5 percent. Kitterll soils are on associated mid and lower slopes that are convex.

Component Description

Corrigan

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Acid sandy and silty residuum
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Low (About 4.7 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 12 to 30 inches, perched; from January to March, and December
Runoff class: Very high
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 6 inches—strongly acid, dark brown loam

Subsoil:
6 to 13 inches—very strongly acid, light brownish gray clay with few fine and medium discontinuous clay films, and redoximorphic concentrations in shades of brown
13 to 18 inches—very strongly acid, light brownish gray clay with few fine and medium discontinuous clay films, and redoximorphic concentrations in shades of brown
18 to 33 inches—very strongly acid, light brownish gray clay

Substratum:
33 to 40 inches—very strongly acid, pale brown and light brownish gray strongly cemented tuffaceous sandstone with sandy loam texture

Use and Management Considerations

Cropland

- The rooting depth of crops is restricted by bedrock and high clay content.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- The movement of water into subsurface drains is restricted.
- Subsurface drainage helps to lower the seasonal high water table.

- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.
- The depth to bedrock may restrict the gradient needed to provide adequate drainage from subsurface systems.

Pastureland

- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- The rooting depth of plants may be restricted by bedrock.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the use of harvesting equipment.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The nature and depth of the soft bedrock in this soil reduces the ease of excavation and increases the difficulty in constructing foundations and installing utilities.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- This soil is not suitable for use as a site for septic tank absorption fields because of the limited depth to bedrock.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

CoE—Corrigan loam, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Corrigan and similar soils: 85 percent

Contrasting Inclusions:
Kitterll soils: 10 percent. Kitterll soils are on associated mid and lower slopes that are convex.
Rayburn soils: 5 percent. Rayburn soils are on slightly higher convex positions and have a thicker solum.

Component Description

Corrigan

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hill slope
Parent material: Acid sandy and silty residuum
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Low (About 3.6 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 12 to 30 inches, perched; from January to March, and December
Runoff class: Very high
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 6 inches—very strongly acid, very dark gray loam

Subsoil:
6 to 18 inches—very strongly acid, dark grayish brown clay with redoximorphic features in shades of brown
18 to 24 inches—very strongly acid, grayish brown clay with redoximorphic features in shades of brown
24 to 35 inches—very strongly acid, light brownish gray clay

Substratum:
35 to 60 inches—very strongly acid, light brownish gray silty clay strongly cemented tuffaceous sandstone

Use and Management Considerations

Cropland

- This soil is not suited to cropland.
- The rooting depth of crops is restricted by bedrock and high clay content.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by bedrock.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increase the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks, and restricts the use of some mechanical planting equipment.
- The stickiness of the soil can reduce the efficiency of mechanical planting equipment.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The nature and depth of the soft bedrock in this soil reduces the ease of excavation and increases the difficulty in constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- This soil is not suitable for use as a site for septic tank absorption fields because of the limited depth to bedrock.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

- Designing local roads and streets is difficult because of the slope.

CyA—Cypress mucky clay, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major Components:
Cypress and similar soils: 90 to 95 percent

Contrasting Inclusions:
Angelina soils: 0 to 5 percent. These soils are gray and loamy throughout and are in sloughs.
Estes soils: 0 to 5 percent. These soils are clayey throughout and are somewhat poorly drained.
Manco soils: 0 to 5 percent. These soils are loamy throughout and are somewhat poorly drained.

Component Description

Cypress

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Swamp on flood plain
Parent material: Clayey alluvium of Holocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Very poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 9.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent
Ponding hazard: Frequent, from the surface to a depth of 48 inches
Depth to seasonal water saturation: At the surface, apparent; from January to December
Runoff class: Negligible
Non-irrigated land capability: 8w

Typical Profile

Surface layer:
0 to 12 inches—extremely acid, very dark grayish brown mucky clay with redoximorphic concentrations in shades of brown

Substratum:
12 to 17 inches—extremely acid, dark gray clay with redoximorphic concentrations in shades of brown, and depletions in shades of gray
17 to 35 inches—extremely acid, gray clay with redoximorphic concentrations in shades of brown, and depletions in shades of gray
35 to 43 inches—extremely acid, gray clay with redoximorphic concentrations in shades of yellow and brown
43 to 64 inches—extremely acid, gray clay with redoximorphic concentrations in shades of yellow and brown
64 to 80 inches—extremely acid, gray clay with redoximorphic concentrations in shades of yellow and brown

Use and Management Considerations

Cropland

- This soil is not suited to cropland because of frequent flooding.

Pastureland

- This soil is not recommended for pasture.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts operation of harvesting equipment.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness, flooding, and ponding may limit the safe use of this soil by log trucks.
- The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- This soil is not suited to building site development because of flooding.
- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters.
- Water tends to pond on this soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- This soil is not suitable for use as septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- This soil is not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

DoB—Doucette loamy sand, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Doucette and similar soils: 90 percent

Contrasting Inclusions:
Colmesneil soils: 5 percent. Colmesneil soils have a Bt horizon with hue of 5YR or redder.
Shankler soils: 5 percent. Shankler soils are on similar or more sloping landscape positions and have loamy fine sand a horizon greater than 20 inches thick.

Component Description

Doucette

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy marine deposits
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Low (About 5.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 3s

Typical Profile

Surface layer:
0 to 6 inches—moderately acid, brown loamy sand

Subsurface layer:
6 to 28 inches—moderately acid, very pale brown loamy sand
28 to 34 inches—strongly acid, very pale brown loamy sand

Subsoil:
34 to 41 inches—strongly acid, yellowish brown sandy clay loam
41 to 80 inches—very strongly acid, brownish yellow sandy clay loam

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.

- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- This soil is well suited to use as building sites.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local Roads and Streets

- These soils are well suited to use as local roads and streets.

EtA—Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major Components:
Estes and similar soils: 40 to 60 percent
Angelina and similar soils: 15 to 40 percent

Contrasting Inclusions:
Bleakwood soils: 0 to 15 percent. Bleakwood soils are fine-loamy soils in lateral flood plains.
Cypress soils: 0 to 5 percent. Cypress soils are submerged or ponded.

Iulus soils: 0 to 15 percent. Iulus soils have coarse-loamy control sections and are on slightly higher flood plain positions.

Component Description

Estes

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Flood plain
Parent material: Clayey alluvium of Holocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 9.0 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Frequent
Ponding hazard: None
Depth to seasonal water saturation: From the surface to a depth of 18 inches, perched; from January to May, and November to December
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown clay with redoximorphic depletions in shades of gray

Subsoil:
5 to 10 inches—very strongly acid, light yellowish brown clay with redoximorphic depletions in shades of brown
10 to 27 inches—very strongly acid, grayish brown clay with redoximorphic concentrations in shades of brown
27 to 43 inches—very strongly acid, grayish brown clay with redoximorphic concentrations in shades of brown
43 to 65 inches—extremely acid, light brownish gray clay with redoximorphic concentrations in shades of brown
65 to 80 inches—extremely acid, light brownish gray clay with redoximorphic concentrations in shades of brown

Angelina

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Flood plain
Parent material: Loamy alluvium of Holocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Very poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 9.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Frequent
Ponding hazard: Occasional
Depth to seasonal water saturation: Water stands on the surface 8 to 10 months in most years

Runoff class: Negligible
Non-irrigated land capability: 6w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, grayish brown fine sandy loam with redoximorphic concentrations in shades of brown

Substratum:
4 to 10 inches—very strongly acid, light brownish gray stratified loam with redoximorphic concentrations in shades of brown
10 to 21 inches—very strongly acid, light brownish gray stratified sandy clay loam with redoximorphic concentrations in shades of brown, and depletions in shades of gray
21 to 30 inches—very strongly acid, light gray stratified sandy clay loam with redoximorphic concentrations in shades of brown
30 to 46 inches—very strongly acid, light gray stratified clay loam with redoximorphic concentrations in shades of brown, and depletions in shades of gray
46 to 63 inches—extremely acid, light gray stratified clay loam with redoximorphic concentrations in shades of brown
63 to 80 inches—extremely acid, light gray stratified clay loam with redoximorphic concentrations in shades of brown

Use and Management Considerations

Cropland

- These soils are not suited to cropland because of frequent flooding.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness, flooding, and ponding may limit the use of these soils by log trucks.
- The stickiness of the soil can reduce the efficiency of mechanical planting equipment.

Building Sites

- The frequent flooding in areas of these soils greatly increases the risk of damage associated with floodwaters. These soils are not suited to building site development because of flooding.
- Water tends to pond on these soils. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. These soils are not suited to building site development.
- The high content of clay in these soils below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- These soils are not suited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- These soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- These soils are not suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of these soils is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

EvA—Evadale silt loam, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Evadale and similar soils: 85 to 90 percent

Contrasting Inclusions:
Camptown soils: 0 to 20 percent. These soils are gray throughout and are in depressions that pond for long periods.
Gist soils: 0 to 5 percent. These soils are oval mounds about 2 to 4 feet higher than the intermound area and are moderately well drained.
Texla soils: 0 to 15 percent. These soils are on oblong or oval mounds 1 to 3 feet above the intermound area and are somewhat poorly drained.

Component Description

Evadale

MLRA: 152B—Western Gulf Coast Flatwoods and 133B—Western Coastal Plain
Landform: Flat on flat coastal plain
Parent material: Loamy fluviomarine deposits of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None

Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.02 in/hr)
Available water capacity: High (About 11.1 inches)
Shrink-swell potential: High (About 7.3 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: From the surface to a depth of 18 inches, perched; from January to April, and December
Runoff class: Low
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 3 inches—strongly acid, dark grayish brown silt loam with redoximorphic concentrations in shades of brown

Subsurface layer:
3 to 7 inches—very strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of brown
7 to 15 inches—very strongly acid, gray and light brownish gray silt loam with redoximorphic concentrations in shades of red, yellow, brown, and gray

Subsoil:
15 to 33 inches—very strongly acid, gray and dark gray silty clay loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
33 to 47 inches—very strongly acid, gray silty clay loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
43 to 57 inches—strongly acid, grayish brown silty clay with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
57 to 70 inches—moderately acid, light brownish gray clay with redoximorphic concentrations in shades of red and brown
70 to 80 inches—moderately acid, light brownish gray silty clay with redoximorphic concentrations in shades of red, yellow, and black, and depletions in shades of gray

Use and Management Considerations

Cropland

- Prime farmland if drained.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.
- The movement of water into subsurface drains is restricted.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.

- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the operation of harvesting equipment.
- Soil wetness and ponding restricts the use of this soil by log trucks.

Building Sites

- Water tends to pond on this soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- This soil is not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- This soil may not be suitable for use as base material for local roads and streets, because of the shrinking and swelling.
- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

GPI—Pits, gravel

Map Unit Composition

Major Components:
Pits, gravel and similar soils: 70 to 100 percent

Contrasting Inclusions:
Colmesneil soils: 0 to 10 percent. On similar positions and are fine sand throughout.
Pinetucky soils: 0 to 20 percent. Are on similar positions, have less than 35 percent clay in the upper 20 inches of the argillic horizon, and have plinthite segregations in the subsoil.
Rogan soils: 0 to 20 percent. Are on similar positions, have less than 35 percent clay in the upper 20 inches of the argillic horizon, have plinthite segregations in the subsoil, and has a gravelly fine sandy loam surface.

Component Descriptions

Pits, Gravel

MLRA: 133B—Western Coastal Plain
Landform: Surface mine on interfluves on coastal plain
Landform position: Convex, linear areas
Parent material: Sandy and silty residuum weathered from mudstone
Slope: 1 to 2 percent, southwest to east aspects
Surface fragments: None
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Slow (About 0.06 in/hr)

Available water capacity: Unspecified
Shrink-swell potential: Unspecified
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Not specified
Ecological site: Not specified
Non-irrigated Land Capability: 6e

Typical Profile

Surface layer:

0 to 8 inches—very strongly acid, grayish brown fine sandy loam, with yellowish brown masses of oxidized iron

Subsoil:

8 to 21 inches—very strongly acid, 65 percent gray and 15 percent grayish brown stratified sandy clay loam to silty clay loam

Substratum:

21 to 39 inches—grayish brown silty clay loam strongly cemented tuffaceous sandtone

Use and Management Considerations:

Cropland:

- These areas are not suited to cropland.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.
- These areas provide poor summer pasture.

Woodland

- The limited available water capacity inhibits root development and increases the seedling mortality rate.
- The acidic soil reaction may cause a nutrient imbalance in seedlings.

Building sites

- These areas are well suited to use for building sites.

Septic Tank Absorption Fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The restricted permeability of these areas limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- These areas are well suited to use as a site for local roads and streets.

HaA—Hainesville loamy fine sand, 0 to 2 percent slopes

Map Unit Composition

Major Components:
Hainesville and similar soils: 85 percent

Contrasting Inclusions:
Mollville soils: 8 percent. Mollville soils are on slightly lower positions and have a loamy or clayey argillic horizon.
Sawlit soils: 7 percent. Sawlit soils are on lower, slightly wetter positions and have aquic conditions within the upper 10 inches of the argillic horizon.

Component Description

Hainesville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Stream Terrace
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (About 2.0 in/hr)
Available water capacity: Moderate (About 6.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth 48 to 72 inches, apparent; from January to April, and December
Runoff class: Negligible
Non-irrigated land capability: 2s

Typical Profile

Surface layer:
0 to 2 inches—moderately acid, pale brown loamy fine sand

Subsoil:
2 to 7 inches—moderately acid, brown loamy fine sand
7 to 22 inches—strongly acid, very pale brown and yellowish brown loamy fine sand
22 to 41 inches—strongly acid, brownish yellow and very pale brown loamy fine sand
41 to 53 inches—strongly acid, yellowish brown loamy fine sand
53 to 70 inches—strongly acid, yellowish brown, light yellowish brown, and very pale brown loamy fine sand
70 to 80 inches—strongly acid, strong brown loamy fine sand

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- A loss of soil productivity may occur following an episode of uncontrolled fire.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. Special design of structures is needed to prevent damage caused by wetness.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- The seasonal high water table in areas of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- These soils are well suited to use as local roads and streets.

HhD—Hillister loamy sand, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Hillister and similar soils: 90 percent

Contrasting Inclusions:
Bonwier soils: 5 percent. Bonwier soils are on convex side slopes, and steep narrow ridges and have a fine control section.
Newco soils: 5 percent. Newco soils have more clayey subsoil.

Component Description

Hillister

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Loamy marine deposits
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches

Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Moderate (About 6.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 6 inches—moderately acid, dark grayish brown loamy sand

Subsurface layer:
6 to 28 inches—moderately acid, light yellowish brown loamy sand

Subsoil:
28 to 35 inches—strongly acid, red sandy clay loam
35 to 50 inches—strongly acid, brownish yellow sandy clay loam

Substratum:
50 to 63 inches—very strongly acid, light gray and strong brown and red clay loam, weakly cemented
63 to 80 inches—very strongly acid, dark reddish brown, light reddish brown, strong brown, and light brownish gray clay loam, weakly cemented

Use and Management Considerations

Cropland

- This soil is not suited to cropland.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks, and restricts the use of some mechanical planting equipment.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- Special design and installation techniques are needed for the effluent distribution lines because of slope.

Local Roads and Streets

- Designing local roads and streets is difficult because of the slope.

IbA—Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major Components:
Iulus and similar soils: 45 to 60 percent
Bleakwood and similar soils: 25 to 35 percent

Contrasting Inclusions:
Angelina soils: 1 to 5 percent. Angelina soils are very poorly drained, are ponded for long periods of time, and are slowly permeable.
Cypress soils: 0 to 1 percent. Cypress soils are on perennially submerged areas in ox bows, shallow lake areas, and stream channels.
Estes soils: 0 to 1 percent. Estes soils are more clayey throughout. The duration of flooding ranges from 2 days to about 2 months.

Component Description

Iulus

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Natural levee on flood plain on river valley on coastal plain
Landform: Convex areas
Parent material: Loamy alluvium of Holocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 9.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Frequent
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 48 inches, perched; from January to April, and December
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 3 inches—very strongly acid, dark yellowish brown fine sandy loam

Subsoil:
3 to 11 inches—strongly acid, yellowish brown fine sandy loam
11 to 23 inches—strongly acid, brown fine sandy loam

23 to 36 inches—strongly acid, brown loam
36 to 52 inches—strongly acid, strong brown loam
52 to 70 inches—strongly acid, light brownish gray fine sandy loam
70 to 80 inches—strongly acid, light gray fine sandy loam

Bleakwood

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: On flood plain on river valley on coastal plain
Landform: Concave areas
Parent material: Loamy alluvium of Holocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Frequent from January to March, and November to December
Ponding hazard: None
Depth to seasonal water saturation: From the surface to a depth of 18 inches, apparent; from January to March, and June to December
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 3 inches—strongly acid, grayish brown loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
3 to 11 inches—strongly acid, light brownish gray loam with redoximorphic concentrations in shades of yellow
11 to 20 inches—strongly acid, light brownish gray loam with redoximorphic concentrations in shades of brown and black
20 to 33 inches—strongly acid, light brownish gray clay loam with redoximorphic concentrations in shades of yellow, brown, and black
33 to 49 inches—strongly acid, light brownish gray sandy clay loam with redoximorphic concentrations in shades of red, brown, and black
49 to 64 inches—very strongly acid, light brownish gray sandy clay loam with redoximorphic concentrations in shades of brown and black
64 to 80 inches—strongly acid, light brownish gray fine sandy loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- These soils are not suited to cropland because of frequent flooding.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs, and restrict the safe use of roads by log trucks.

Building Sites (fig. 8)

- The frequent flooding in areas of these soils greatly increases the risk of damage associated with floodwaters.
- These soils are not suited to building site development because of the flooding.

Septic Tank Absorption Fields

- These soils are not suited to septic tank absorption fields. The flooding in areas of these soils severely restricts the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Local Roads and Streets

- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Figure 8.—Flooding in an area of Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded. These areas are not suited to homesites because of severe hazard of flooding.

JhA—Jayhawker silt loam, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Jayhawker and similar soils: 85 to 90 percent

Contrasting Inclusions:
Dallardsville soils: 1 to 5 percent. These soils are moderately well drained and are mounds.
Olive soils: 1 to 10 percent. These soils have a fragipan within 40 inches of the surface and are on a similar landscape position.

Component Description

Jayhawker

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Flat on coastal plain
Landform: Linear Concave areas
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None within 60 inches
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.04 in/hr)
Available water capacity: High (About 10.8 inches)
Shrink-swell potential: Low (About 1.4 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to March, and November to December
Depth to seasonal water saturation: At a depth of 12 to 18 inches, perched; from January to March, June to December
Runoff class: Negligible
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 6 inches—very strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of yellow and brown

Subsurface layer:
6 to 20 inches—very strongly acid, light brownish gray silt loam with redoximorphic concentrations in shades of red and brown
20 to 36 inches—extremely acid, gray silt loam with redoximorphic concentrations in shades of red and yellow

Subsoil:
36 to 69 inches—extremely acid, gray and pinkish gray silt loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
69 to 80 inches—very strongly acid, light brownish gray and light gray silt loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray

Use and Management Considerations

Cropland

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Soil wetness and ponding restricts safe use of this soil by log trucks.

Building Sites

- Water tends to pond on this soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- The soil is not suited to building site development.

Septic Tank Absorption Fields

- This soil is not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.

KeB—Kenefick very fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Kenefick and similar soils: 85 to 90 percent

Contrasting Inclusions:
Belrose soils: 1 to 15 percent. Belrose soils have a coarse-loamy particle-size control section and are on similar landscape positions.
Caneyhead soils: 1 to 10 percent. Caneyhead soils are Glossaqualfs and are on lower landscape positions.
Spurger soils: 1 to 5 percent. Spurger soils have a clayey particle-size control section and are on similar to higher landscape positions.
Votaw soils: 0 to 5 percent. Votaw soils are sandy throughout and are on similar landscape positions.

Component Description

Kenefick

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Riser on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 8.5 inches)
Shrink-swell potential: Low (About 2.6 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 72 inches, apparent; from January to December
Runoff class: Low
Non-irrigated land capability: 2e

Typical Profile

Surface layer:
0 to 5 inches—strongly acid, dark grayish brown and pale brown very fine sandy loam

Subsurface layer:
5 to 10 inches—moderately acid, pale brown and brown very fine sandy loam

Subsoil:
10 to 25 inches—strongly acid, strong brown, light yellowish brown and brown very fine sandy loam
25 to 30 inches—very strongly acid, red sandy clay loam
30 to 37 inches—very strongly acid, red clay loam
37 to 46 inches—very strongly acid, red sandy clay loam
46 to 55 inches—very strongly acid, yellowish red very fine sandy loam
55 to 67 inches—very strongly acid, yellowish red and brownish yellow very fine sandy loam
67 to 77 inches—very strongly acid, red, brownish yellow and light gray very fine sandy loam
77 to 80 inches—very strongly acid, light gray and brownish yellow stratified very fine sandy loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

Pastureland

- This soil is well suited to pasture.

Woodland

- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.

Building Sites

- This soil is well suited to use as building sites.

Septic Tank Absorption Fields

- The seasonal high water table in areas of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

KfA—Kenefick-Caneyhead complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Kenefick and similar soils: 40 to 60 percent
Caneyhead and similar soils: 25 to 30 percent

Contrasting Inclusions:
Belrose soils: 1 to 15 percent. Belrose soils have a coarse-loamy particle-size control section and are on similar landscape positions.
Spurger soils: 0 to 5 percent. Spurger soils have a clayey particle-size control section and are on similar to higher landscape positions.
Votaw soils: 0 to 5 percent. Votaw soils are sandy throughout and are on similar landscape positions.

Component Description

Kenefick

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Riser on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 8.5 inches)
Shrink-swell potential: Low (About 2.6 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 72 inches, apparent; from January to December
Runoff class: Low
Non-irrigated land capability: 2e

Typical Profile

Surface layer:
0 to 3 inches—strongly acid, dark grayish brown fine sandy loam

Subsurface layer:
4 to 20 inches—strongly acid, light yellowish brown fine sandy loam

Subsoil:
20 to 26 inches—moderately acid, yellowish red and light yellowish brown fine sandy loam
26 to 33 inches—moderately acid, yellowish red loam
33 to 55 inches—moderately acid, yellowish red clay loam
55 to 60 inches—very strongly acid, yellowish red sandy clay loam
60 to 80 inches—very strongly acid, very pale brown fine sandy loam

Caneyhead

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Swale on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 11.4 inches)
Shrink-swell potential: Moderate (About 4.0 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to June, and December
Depth to seasonal water saturation: At the surface, apparent; from January to June, and December
Runoff class: Negligible
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 4 inches—strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of brown, and depletions in shades of gray

Subsurface layer:
4 to 18 inches—very strongly acid, light brownish gray silt loam with redoximorphic concentrations in shades of red, brown, and gray
18 to 27 inches—very strongly acid, light gray and light gray silt loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
27 to 43 inches—very strongly acid, light gray with redoximorphic concentrations in shades of yellow and brown
43 to 61 inches—extremely acid, light gray clay loam with redoximorphic concentrations in shades of yellow and brown
61 to 80 inches—extremely acid, light gray and pale yellow loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- Prime farmland if drained.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- The Kenefick soils are well suited to pasture. The Caneyhead soils are poorly suited to this use because of ponding.

Woodland

- Standing water on the Caneyhead soils can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the operation of harvesting equipment.
- Ponding on the Caneyhead soils restricts the safe use of roads by log trucks.

Building Sites

- Water tends to pond on the Caneyhead soils. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic Tank Absorption Fields

- The Caneyhead soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding on the Caneyhead soils affects the ease of excavation and grading and limits the bearing capacity of the Caneyhead soils.

KgA—Kirbyville-Niwana complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Kirbyville and similar soils: 50 to 60 percent
Niwana and similar soils: 20 to 40 percent

Contrasting Inclusions:
Waller soils: 5 to 15 percent. These soils are poorly drained, have a higher seasonal water table, and are on a lower landscape position.

Component Description

Kirbyville

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Flat on coastal plain

Hill slope position: Linear convex foot slope
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 2 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: High (About 10.8 inches)
Shrink-swell potential: Low (About 1.1 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 30 inches, perched; from January to March
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, dark grayish brown fine sandy loam with redoximorphic concentrations in shades of brown

Subsurface layer:
5 to 11 inches—very strongly acid, light yellowish brown loam
11 to 18 inches—very strongly acid, light yellowish brown and brownish yellow loam

Subsoil:
18 to 25 inches—very strongly acid, yellowish brown and light yellowish brown loam
25 to 33 inches—very strongly acid, brownish yellow, pale brown, and light brownish gray loam
33 to 60 inches—very strongly acid, yellowish brown and gray loam
60 to 80 inches—very strongly acid, brownish yellow and light gray clay loam

Niwana

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Flat on coastal plain
Landform: Convex areas
Parent material: Loamy eolian deposits over loamy fluviomarine deposits of Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Slow (About 0.1 in/hr)
Available water capacity: High (About 9.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 48 to 72 inches, apparent; from January to February
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 6 inches—strongly acid, brown fine sandy loam

Subsurface layer:
6 to 17 inches—strongly acid, light brown loam
17 to 22 inches—strongly acid, yellow and reddish yellow loam

Subsoil:
22 to 29 inches—strongly acid, brownish yellow and light yellowish brown loam with redoximorphic concentrations in shades of red and depletions in shades of red, brown, and yellow
29 to 46 inches—very strongly acid, brownish yellow and light yellowish brown loam with redoximorphic concentrations in shades of red, and depletions in shades of brown
46 to 60 inches—strongly acid, brownish yellow loam with redoximorphic concentrations in shades of red, and depletions in shades of brown
60 to 80 inches—very strongly acid, brownish yellow loam with redoximorphic concentrations in shades of red, and depletions in shades of brown

Use and Management Considerations

Cropland

- All areas are prime farmland.
- These soils are well suited to cropland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increase the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.
- These soils are poorly suited to building site development and structures may need special design to avoid damage from wetness.

Septic Tank Absorption Fields

- The seasonal high water table in areas of these soils greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

KiB—Kirbyville fine sandy loam, 0 to 2 percent slopes

Map Unit Composition

Major Components:
Kirbyville and similar soils: 85 to 95 percent

Contrasting Inclusions:
Niwana soils: 5 percent. Niwana soils have a coarse-loamy particle-size control section and are on mounds.
Otanya soils: 10 percent. Otanya soils do not have a glossic horizon and are well drained.
Waller soils: 0 to 5 percent. These soils are poorly drained, have a higher seasonal water table, and are on lower positions.

Component Description

Kirbyville

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Inland dissected coastal plain
Landform: Rise on flat
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 2 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: High (About 10.7 inches)
Shrink-swell potential: Low (About 1.9 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 30 inches, perched; from January to March
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, dark grayish brown very fine sandy loam with redoximorphic concentrations in shades of brown

Subsurface layer:
5 to 11 inches—very strongly acid, light yellowish brown loam

Subsoil:
11 to 18 inches—very strongly acid, light yellowish brown and brownish yellow loam
18 to 25 inches—very strongly acid, yellowish brown and light yellowish brown loam
25 to 33 inches—very strongly acid, brownish yellow, pale brown, and light brownish gray loam
33 to 60 inches—very strongly acid, yellowish brown and gray loam
60 to 80 inches—very strongly acid, brownish yellow and light gray clay loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

Building Sites

- This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

KnB—Kountze very fine sandy loam, 0 to 2 percent slopes

Map Unit Composition

Major Components:
Kountze and similar soils: 85 to 90 percent

Contrasting Inclusions:
Kirbyville soils: 1 to 10 percent. These soils have more than 18 percent of clay in the particle-size control section and are on a similar landscape position.
Sorter soils: 1 to 10 percent. These soils are gray throughout and are on a lower landscape position.
Waller soils: 0 to 10 percent. These soils have more than 18 percent of clay in the particle-size control section, gray throughout, and are on a lower landscape position.

Component Description

Kountze

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Ridge on coastal plain
Parent material: Pleistocene loamy sediments
Slope: 0 to 2 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.1 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Low (About 1.6 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 24 inches, apparent; from January to March
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 6 inches—strongly acid, brown very fine sandy loam with redoximorphic concentrations in shades of brown

Subsurface layer:
6 to 17 inches—strongly acid, light yellowish brown very fine sandy loam with redoximorphic concentrations in shades of brown and black
17 to 25 inches—very strongly acid, light yellowish brown and strong brown very fine sandy loam with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray and black

Subsoil:
25 to 43 inches—very strongly acid, reddish yellow and pale brown loam with redoximorphic concentrations in shades of red, brown, and black, and depletions in shades of gray
43 to 54 inches—very strongly acid, brownish yellow and gray loam with redoximorphic concentrations in shades of red, brown, and black, and depletions in shades of gray
54 to 73 inches—very strongly acid, brownish yellow and light gray loam with redoximorphic concentrations in shades of red and brown
73 to 80 inches—very strongly acid, brownish yellow and light gray silt loam with redoximorphic concentrations in shades of red and yellow

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

Pastureland

- This soil is well suited to pasture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict operation of harvesting equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.
- This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

KoA—Koury very fine sandy loam, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major Components:
Koury and similar soils: 85 percent

Contrasting Inclusions:
Ozias soils: 5 percent. Ozias soils are on similar positions on the flood plain. These soils are more clayey and are somewhat poorly drained.
Pophers soils: 10 percent. Pophers soils have a fine-silty particle-size control section. In addition Pophers soils are somewhat poorly drained.

Component Description

Koury

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Flood plain
Parent material: Loamy alluvium
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.2 in/hr)
Available water capacity: High (About 9.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Frequent, from January to May

Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown very fine sandy loam

Subsoil:
5 to 13 inches—very strongly acid, brown loam
13 to 37 inches—strongly acid, brown loam
37 to 46 inches—very strongly acid, grayish brown loam
46 to 53 inches—very strongly acid, dark grayish brown very fine sandy loam
53 to 65 inches—very strongly acid, brown loam with redoximorphic depletions in shades of gray
65 to 72 inches—strongly acid, pale brown loam with redoximorphic depletions in shades of brown
72 to 80 inches—strongly acid, light brownish gray very fine sandy loam with redoximorphic concentrations in shades of yellow

Use and Management Considerations

Cropland

- This soil is not suited to cropland because of frequent flooding.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Flooding may result in damage to haul roads and increased maintenance costs, and restricts the safe use of roads by log trucks.

Building Sites

- This soil is not suited to building site development because of the flooding.
- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters.

Septic Tank Absorption Fields

- This soil is not suited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Local Roads and Streets

- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Lb—Laneville fine sandy loam, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major Components:
Laneville and similar soils: 85 percent

Contrasting Inclusions:
Estes soils: 10 percent. Estes soils are clayey.
Iulus soils: 5 percent. Iulus series have coarse-loamy control sections and are on slightly higher flood plain positions.

Component Description

Laneville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Flood plain
Parent material: Loamy and clayey alluvium
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.8 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Frequent
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 36 inches, perched; from January to May, and November to December
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 4 inches—moderately acid, brown fine sandy loam

Subsoil:
4 to 13 inches—strongly acid, pale brown fine sandy loam
13 to 21 inches—very strongly acid, very pale brown fine sandy loam
21 to 26 inches—very strongly acid, brownish yellow loam with redoximorphic depletions in shades of gray
26 to 38 inches—very strongly acid, light brownish gray clay loam with redoximorphic concentrations in shades of yellow and brown
38 to 52 inches—very strongly acid, light gray clay with redoximorphic concentrations and depletions in shades of brown and gray
52 to 80 inches—extremely acid, light gray clay with redoximorphic concentrations in shades of brown

Use and Management Considerations

Cropland

- This soil is not suited to cropland because of frequent flooding.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Flooding may result in damage to haul roads and increased maintenance costs, and restrict the safe use of roads by log trucks.

Building Sites

- This soil is not suited to building site development because of the flooding.
- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- This soil is not suited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

LcB—Laska fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Laska and similar soils: 80 percent

Contrasting Inclusions:
Corrigan soils: 10 percent. Corrigan soils are on slightly lower plane and concave positions, have a Cr horizon within a depth of 60 inches, and are on nearby side slopes.
Rayburn soils: 10 percent. Rayburn soils have a reddish, clayey Bt horizon, have a Cr horizon within a depth of 60 inches, and are on nearby side slopes.

Component Description

Laska

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy marine deposits
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: Greater than 60 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid (About 2.0 in/hr)
Available water capacity: Moderate (About 6.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 18 to 36 inches, apparent; from January to May, and December
Runoff class: Negligible
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 8 inches—very strongly acid, brown fine sandy loam

Subsurface layer:
8 to 20 inches—strongly acid, pale brown fine sandy loam

Subsoil:
20 to 38 inches—very strongly acid, yellowish brown loam with redoximorphic concentrations in shades of yellow and brown
38 to 48 inches—very strongly acid, light brownish gray, yellowish brown and red loam with redoximorphic concentrations in shades of brown
48 to 65 inches—very strongly acid, light brownish gray clay loam with redoximorphic concentrations in shades of red
65 to 80 inches—very strongly acid, light brownish gray weakly cemented, silty clay loam with redoximorphic concentrations in shades of brown

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- This soil is well suited to pasture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

Building Sites

- This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- The limited depth to bedrock can reduce the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

LvA—Lelavale silt loam, 0 to 1 percent slopes, ponded

Map Unit Composition

Major Components:
Lelavale and similar soils: 90 to 100 percent

Contrasting Inclusions:
Jasco soils: 0 to 5 percent. These soils have a fragipan and are on a similar landscape position.
Jayhawker soils: 1 to 5 percent. These soils have less than 18 percent clay in the particle-size control section and are on a slightly higher landscape position.

Component Description

Lelavale

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Depression on coastal plain
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 11.4 inches)
Shrink-swell potential: Low (About 1.0 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to April, and October to December
Depth to seasonal water saturation: At the surface, perched; from January to June, and November to December
Runoff class: Negligible
Non-irrigated land capability: 6w

Typical Profile

Surface layer:
0 to 4 inches—extremely acid, dark grayish brown silt loam with redoximorphic concentrations in shades of brown

Subsurface layer:
4 to 12 inches—extremely acid, grayish brown silt loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
12 to 16 inches—extremely acid, gray and light brownish gray loam with redoximorphic concentrations in shades of red and yellow
16 to 31 inches—extremely acid, gray and light brownish gray clay loam with redoximorphic concentrations in shades of red, yellow, and brown
31 to 41 inches—extremely acid, brownish yellow and light brownish gray clay loam with redoximorphic concentrations in shades of red, and depletions in shades of gray
41 to 49 inches—extremely acid, brownish yellow, yellowish red, and red clay with redoximorphic concentrations in shades of yellow, and depletions in shades of gray
49 to 57 inches—extremely acid, light gray clay with redoximorphic concentrations in shades of red and brown
57 to 80 inches—extremely acid, light gray clay loam with redoximorphic concentrations in shades of red and yellow

Use and Management Considerations

Cropland

- This soil is not suited to cropland.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Plant species that are adapted to low soil pH should be selected.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increase the cost of constructing haul roads and log landings.
- Soil wetness and ponding restricts the use of this soil by log trucks.

Building Sites

- The soil is not suited to building site development.
- Water tends to pond on this soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- This soil is not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

MpA—Mollville-Besner complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Mollville and similar soils: 50 percent
Besner and similar soils: 35 percent

Contrasting Inclusions:
Alazan soils: 5 percent. Alazan soils have a fine-loamy control section. Alazan soils have water tables within 40 inches of the surface and are wetter.
Hainesville soils: 10 percent. Hainesville soils are on slightly higher terrace positions adjoining low ridges or mounds, and they have a sandy surface layer.

Component Description

Mollville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Stream Terrace
Parent material: Stratified sandy and loamy sediments
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.9 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to June, and November to December
Depth to seasonal water saturation: At the surface, apparent; from January to June, and November to December
Runoff class: Low
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 3 inches—slightly acid, brown loam

Subsurface layer:
3 to 13 inches—slightly acid, light brownish gray loam with redoximorphic concentrations in shades of brown, and depletions in shades of gray

Subsoil:
13 to 24 inches—slightly acid, light gray and light brownish gray loam

24 to 30 inches—slightly acid, light gray and gray loam with redoximorphic concentrations in shades of brown
30 to 43 inches—slightly acid, light gray and light brownish gray silty clay loam with redoximorphic concentrations in shades of brown
43 to 49 inches—slightly acid, light gray and light brownish gray clay with redoximorphic concentrations in shades of yellow and brown
49 to 65 inches—neutral, light brownish gray silty clay loam with redoximorphic concentrations in shades of yellow and brown
65 to 80 inches—neutral, light gray and light brownish gray silty clay loam with redoximorphic concentrations in shades of yellow and brown

Besner

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Stream terrace
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 8.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 48 to 72 inches, apparent; from January to February
Runoff class: Negligible
Non-irrigated land capability: 2e

Typical Profile

Surface layer:
0 to 8 inches—moderately acid, brown fine sandy loam

Subsurface layer:
8 to 17 inches—strongly acid, yellowish brown fine sandy loam
17 to 30 inches—strongly acid, pale brown fine sandy loam

Subsoil:
30 to 42 inches—strongly acid, strong brown and pale brown fine sandy loam
42 to 51 inches—strongly acid, yellowish brown and pale brown loam with redoximorphic concentrations in shades of brown
51 to 71 inches—strongly acid, yellowish brown and pale brown loam with redoximorphic concentrations in shades of brown
71 to 80 inches—strongly acid, brownish yellow and light gray loam with redoximorphic concentrations in shades of brown

Use and Management Considerations

Cropland

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the operation of harvesting equipment.
- Soil wetness and ponding restrict the use of these soils by log trucks.

Building Sites

- These soils are not suited to building site development.
- Water tends to pond on these soils. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.

Septic Tank Absorption Fields

- These soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of these soils.
- These soils may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

NhB—Newco fine sandy loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Newco and similar soils: 85 percent

Contrasting Inclusions:
Doucette soils: 5 percent. Doucette soils are on slightly higher convex slopes and have less than 35 percent clay in the upper 20 inches of the argillic horizon.
Pinetucky soils: 10 percent. Pinetucky soils are on similar positions, have less than 35 percent clay in the upper 20 inches of the argillic horizon, and have plinthite segregations in the subsoil.

Component Description

Newco

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve

Parent material: Clayey marine deposits
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches to densic material
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 7.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 3 inches—very strongly acid, brown fine sandy loam

Subsurface layer:
3 to 9 inches—very strongly acid, pale brown fine sandy loam

Subsoil:
9 to 13 inches—very strongly acid, red clay
13 to 35 inches—very strongly acid, red clay with redoximorphic concentrations in shades of red, and depletions in shades of gray
35 to 48 inches—very strongly acid, light gray clay with redoximorphic concentrations in shades of red

Substratum:
48 to 80 inches—very strongly acid, light brownish gray noncemented, silty clay with redoximorphic concentrations in shades of red

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The stickiness of the soil can reduce the efficiency of mechanical planting equipment.
- Use of equipment for site preparation is restricted to the drier periods because of the stickiness of the soil.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

NhD—Newco fine sandy loam, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Newco and similar soils: 85 percent

Contrasting Inclusions:
Corrigan soils: 15 percent. Corrigan soils are on slightly lower plane and concave positions.

Component Description

Newco

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hill slope
Parent material: Clayey marine deposits
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches to densic material
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 6.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 4 inches—strongly acid, brown fine sandy loam

Subsoil:
4 to 10 inches—very strongly acid, red clay

10 to 19 inches—very strongly acid, red and light brownish gray clay
19 to 29 inches—very strongly acid, dark grayish brown clay with redoximorphic concentrations in shades of brown
29 to 42 inches—very strongly acid, light brownish gray clay with redoximorphic concentrations in shades of brown

Substratum:
42 to 46 inches—very strongly acid, light gray silty clay with redoximorphic concentrations in shades of red and brown
46 to 80 inches—very strongly acid, light gray noncemented, silt loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- This soil is not suited to cropland.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increase the cost of constructing haul roads and log landings.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks, and restricts the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.

- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the slope.

NoA—Nona-Dallardsville complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Nona and similar soils: 65 to 70 percent
Dallardsville and similar soils: 20 to 25 percent

Contrasting Inclusions:
Kirbyville soils: 0 to 5 percent. These soils are moderately well drained, have less salinity, and are on a higher landscape position.
Plank soils: 1 to 10 percent. These soils have less than 18 percent clay in the particle-size control section and are on a similar landscape position.
Waller soils: 1 to 15 percent. These soils have lower salinity levels, less crawfish activity, and are on a similar landscape position.

Component Description

Nona

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Flat on coastal plain
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: High (About 11.5 inches)
Shrink-swell potential: High (About 6.2 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At the surface, perched; from January to April, and November to December
Runoff class: Negligible
Non-irrigated land capability: 7w

Typical Profile

Surface layer:
0 to 3 inches—extremely acid, grayish brown very fine sandy loam with redoximorphic concentrations in shades of yellow

Subsoil:
3 to 7 inches—very strongly acid, gray very fine sandy loam with redoximorphic concentrations in shades of yellow, and depletions in shades of gray
7 to 19 inches—very strongly acid, light brownish gray very fine sandy loam with redoximorphic concentrations in shades of red and brown
19 to 38 inches—very strongly acid, gray loam with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray

38 to 53 inches—very strongly acid, gray clay loam with redoximorphic concentrations in shades of red, yellow, and brown, and depletions in shades of gray
53 to 72 inches—very strongly acid, light gray loam with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray
72 to 80 inches—extremely acid, gray and light gray clay loam with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray

Dallardsville

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Mound
Parent material: Loamy eolian deposits over loamy fluviomarine deposits of Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: Very high (About 14.1 inches)
Shrink-swell potential: Moderate (About 3.7 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 36 to 48 inches, apparent; from January to March, and December
About 36 to 48 inches, perched
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 9 inches—strongly acid, brown very fine sandy loam

Subsurface layer:
9 to 14 inches—strongly acid, yellowish brown very fine sandy loam
14 to 19 inches—strongly acid, light yellowish brown and reddish yellow very fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
19 to 27 inches—strongly acid, reddish yellow and light yellowish brown loam with redoximorphic concentrations in shades of red, yellow, and brown
27 to 41 inches—strongly acid, brownish yellow and pale brown loam with redoximorphic concentrations in shades of red, yellow, and brown, and depletions in shades of gray
41 to 58 inches—very strongly acid, brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown
58 to 80 inches—very strongly acid, brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- These soils are not suited to cropland.

Pastureland

- These soils are not recommended for pasture.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the operation of harvesting equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- These soils are poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- These soils are not suitable for use as a site for septic tank absorption fields because of the seasonal high water table.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of these soils.
- The low strength of these soils is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

OiA—Olive-Dallardsville complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Olive and similar soils: 50 to 65 percent
Dallardsville and similar soils: 25 to 35 percent

Contrasting Inclusions:
Babco soils: 0 to 3 percent. These soils do not have a fragipan and are on a higher landscape position.
Jayhawker soils: 0 to 5 percent. These soils do not have a fragipan and are on a similar landscape position.
Sorter soils: 1 to 10 percent. These soils do not have a fragipan and are on a similar landscape position.

Component Description

Olive

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Depression
Landscape: Flat coastal plain
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: 22 inches to fragipan
Drainage class: Very poorly drained

Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 8.6 inches)
Shrink-swell potential: Low (About 0.5 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to May, and November to December
Depth to seasonal water saturation: At the surface, apparent; from January to May, and November to December
Runoff class: Negligible
Non-irrigated land capability: 6w

Typical Profile

Surface layer:
0 to 10 inches—extremely acid, black fine sandy loam

Subsurface layer:
10 to 30 inches—very strongly acid, light gray fine sandy loam with redoximorphic concentrations in shades of yellow

Subsoil:
30 to 49 inches—very strongly acid, light gray loam with redoximorphic concentrations in shades of brown
49 to 80 inches—very strongly acid, light gray loam with redoximorphic concentrations in shades of yellow

Dallardsville

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Mound
Landscape: Flat coastal plain
Parent material: Loamy eolian deposits over loamy fluviomarine deposits of Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: Very high (About 13.9 inches)
Shrink-swell potential: Moderate (About 3.7 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 36 to 48 inches, apparent; perched; from January to March and December
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 9 inches—strongly acid, brown very fine sandy loam

Subsurface layer:
9 to 14 inches—strongly acid, yellowish brown very fine sandy loam
14 to 19 inches—strongly acid, light yellowish brown and reddish yellow very fine sandy loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
19 to 27 inches—strongly acid, reddish yellow and light yellowish brown loam with redoximorphic concentrations in shades of red, yellow, and brown

27 to 41 inches—strongly acid, brownish yellow and pale brown loam with redoximorphic concentrations in shades of red, yellow, and brown, and depletions in shades of gray
41 to 58 inches—very strongly acid, brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown
58 to 80 inches—very strongly acid, brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- These soils are not suited to cropland.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Plant species that are adapted to low soil pH should be selected.
- The rooting depth of plants may be restricted by a dense soil layer.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increase the cost of constructing haul roads and log landings, and restrict the operation of harvesting equipment.
- Soil wetness and ponding restrict the safe use of these soils by log trucks.

Building Sites

- Water tends to pond on these soils. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- These soils are not suited to building site development.
- In some areas the dense nature of the subsurface layer increases the difficulty of digging and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- These soils are not suitable for use as septic tank absorption fields because of ponding, depth to seasonal water table, and very slow permeability.

Local Roads and Streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of the Olive soil.

OtB—Otanya very fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Otanya and similar soils: 85 to 90 percent

Contrasting Inclusions:

Kirbyville soils: 1 to 10 percent. These soils have a higher seasonal water table and are on a slightly lower landscape position.

Niwana soils: 0 to 5 percent. These soils have less than 18 percent clay in the particle-size control section and are mounds.

Silsbee soils: 0 to 5 percent. These soils have reddish subsoil and are on slopes more than 3 percent.

Waller soils: 0 to 2 percent. These soils are poorly drained, have a higher seasonal water table, and are on a lower landscape position.

Component Description

Otanya

MLRA: 152B—Western Gulf Coast Flatwoods
Landform: Inland dissected coastal plain
Hill slope position: Backslopes and shoulders
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Slow (About 0.1 in/hr)
Available water capacity: High (About 10.1 inches)
Shrink-swell potential: Low (About 1.9 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 54 to 60 inches, perched; from January to March
Runoff class: Very low
Non-irrigated land capability: 2e

Typical Profile

Surface layer:
0 to 6 inches—strongly acid, dark grayish brown very fine sandy loam

Subsurface layer:
6 to 12 inches—very strongly acid, light yellowish brown and brown very fine sandy loam with redoximorphic concentrations in shades of brown
12 to 19 inches—very strongly acid, light yellowish brown and brownish yellow very fine sandy loam with redoximorphic concentrations in shades of yellow

Subsoil:
19 to 28 inches—very strongly acid, brownish yellow very fine sandy loam with redoximorphic concentrations in shades of red and yellow
28 to 43 inches—very strongly acid, brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and yellow
43 to 60 inches—very strongly acid, brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
60 to 78 inches—very strongly acid, brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
78 to 80 inches—very strongly acid, light brownish gray, pale brown and brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- This soil is well suited to pasture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. Special design of structures is needed to prevent damage caused by wetness.

Septic Tank Absorption Fields

- The seasonal high water table in areas of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

OtC—Otanya fine sandy loam, 3 to 5 percent slopes

Map Unit Composition

Major Components:
Otanya and similar soils: 90 to 95 percent

Contrasting Inclusions:
Kirbyville soils: 0 to 10 percent. These soils have a higher seasonal water table and are on a slightly lower landscape position.
Silsbee soils: 0 to 10 percent. These soils have subsoil in shades of red and are on slopes more than 3 percent.

Component Description

Otanya

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Inland dissected coastal plain
Hillslope position: Backslopes and shoulders
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 3 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained

Slowest permeability: Slow (About 0.1 in/hr)
Available water capacity: High (About 10.1 inches)
Shrink-swell potential: Low (About 1.9 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 54 to 60 inches, perched; from January to March
Runoff class: Low
Non-irrigated land capability: 2e

Typical Profile

Surface layer:
0 to 5 inches—strongly acid, dark grayish brown fine sandy loam

Subsurface layer:
5 to 11 inches—strongly acid, light yellowish brown fine sandy loam
11 to 19 inches—strongly acid, reddish yellow fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
19 to 33 inches—strongly acid, brownish yellow sandy clay loam with redoximorphic concentrations in shades of red
33 to 59 inches—strongly acid, brownish yellow sandy clay loam with redoximorphic concentrations in shades of red and brown
59 to 80 inches—strongly acid, brownish yellow and yellowish red loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. Special design of structures is needed to prevent damage caused by wetness.

Septic Tank Absorption Fields

- The seasonal high water table in areas of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

Oz—Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded

Map Unit Composition

Major Components:
Ozias and similar soils: 55 percent
Pophers and similar soils: 35 percent

Contrasting Inclusions:
Koury soils: 10 percent. Koury soils are on similar flood plain positions and have a coarse-silty particle-size control section.

Component Description

Ozias

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Flood plain
Parent material: Clayey alluvium
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 8.4 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Frequent, from January to May, and December
Depth to seasonal water saturation: From the surface to a depth of 18 inches, perched; from January to October, and December
Runoff class: High
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 6 inches—very strongly acid, very dark grayish brown clay

Subsoil:
6 to 12 inches—very strongly acid, grayish brown clay with redoximorphic concentrations in shades of brown
12 to 18 inches—very strongly acid, dark grayish brown clay with redoximorphic concentrations in shades of brown
18 to 38 inches—very strongly acid, dark gray clay with redoximorphic concentrations in shades of black
38 to 51 inches—very strongly acid, gray and dark gray clay with redoximorphic concentrations in shades of brown

51 to 80 inches—very strongly acid, grayish brown clay with redoximorphic concentrations in shades of brown

Pophers

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Flood plain
Parent material: Loamy alluvium
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (About 0.2 in/hr)
Available water capacity: High (About 10.1 inches)
Shrink-swell potential: Low
Flooding hazard: Frequently, from January to June
Depth to seasonal water saturation: These soils are saturated in all layers below a depth of 1 to 2 feet, during December through May in normal years
Runoff class: Low
Non-irrigated land capability: 5w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, dark brown silty clay loam
4 to 7 inches—very strongly acid, brown silty clay loam

Subsoil:
7 to 17 inches—very strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of brown
17 to 33 inches—very strongly acid, light brownish gray silt loam with redoximorphic concentrations in shades of brown
33 to 42 inches—very strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of brown
42 to 53 inches—very strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of brown
53 to 80 inches—extremely acid, light brownish gray silt loam

Use and Management Considerations

Cropland

- These soils are not suited to cropland because of frequent flooding.

Pastureland (fig. 9)

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.

Figure 9.—Native pasture on an area of Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded.

- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness and flooding restricts the safe use of these soils by log trucks.
- These soils become sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- These soils are not suited to building site development because of the flooding.
- The frequent flooding in areas of these soils greatly increases the risk of damage associated with floodwaters.
- The high content of clay in these soils below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- These soils are not suited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.

- These soils are not suitable for use as a site for septic tank absorption fields because of the seasonal high water table.

Local Roads and Streets

- These soils may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low strength of these soils is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

PkA—Plank silt loam, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Plank and similar soils: 90 to 95 percent

Contrasting Inclusions:
Dallardsville soils: 1 to 5 percent. These soils are moderately well drained and are on mounds.
Sorter soils: 1 to 10 percent. These soils have a higher content of sands coarser than very fine sand and are on a similar landscape position.

Component Description

Plank

MLRA: 133B—Western Coastal Plain and 152B—Western Gulf Coast Flatwoods
Landform: Flats
Landscape: Flat coastal plain
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Moderately slow (About 0.2 in/hr)
Available water capacity: Moderate (About 7.9 inches)
Shrink-swell potential: Low (About 1.1 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: From the surface to a depth of 6 inches, perched; from January to May, and November to December
Runoff class: Low
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 3 inches—extremely acid, grayish brown silt loam

Subsoil:
3 to 24 inches—extremely acid, light brownish gray silt loam with redoximorphic concentrations in shades of red, yellow, and brown

24 to 35 inches—extremely acid, light gray silt loam with redoximorphic concentrations in shades of red, yellow, and brown
35 to 64 inches—extremely acid, grayish brown silt loam with redoximorphic concentrations in shades of red, yellow, and brown, and depletions in shades of gray
64 to 80 inches—extremely acid, light brownish gray silt loam with redoximorphic concentrations in shades of yellow and brown, and depletions in shades of gray

Use and Management Considerations

Cropland

- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The acidic soil reaction may cause micronutrient toxicity.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Plant species that are adapted to low soil pH should be selected.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of this soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.

Septic Tank Absorption Fields

- This soil is not suitable for use as a site for septic tank absorption fields because of the seasonal high water table.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

PmB—Pinetucky fine sandy loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Pinetucky and similar soils: 75 percent

Contrasting Inclusions:

Bonwier soils: 10 percent. Bonwier soils occur on ridgetops and low hills in the landscape; they all have clayey control sections.

Rogan soils: 10 percent. Rogan soils occur on gently sloping areas. Rogan soils are strongly cemented to indurated iron oxide concretions less than 2 centimeters in diameter range from 15 to 35 percent in the a horizon, from 10 to 35 percent in the Bt2, and from 0 to 10 percent in the lower Bt horizon.

Component Description

Pinetucky

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy marine deposits
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.3 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, dark grayish brown fine sandy loam

Subsurface layer:
5 to 9 inches—very strongly acid, pale brown fine sandy loam

Subsoil:
9 to 15 inches—very strongly acid, yellowish brown sandy clay loam
15 to 26 inches—very strongly acid, strong brown sandy clay loam with redoximorphic concentrations in shades of red
26 to 38 inches—very strongly acid, reddish yellow sandy clay loam with redoximorphic concentrations in shades of brown
38 to 62 inches—very strongly acid, light red, red, weak red, light brownish gray, light gray, brownish yellow, and strong brown sandy clay loam
62 to 80 inches—very strongly acid, dark red, pale red, strong brown, brownish yellow, and light brownish gray sandy clay loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and helps to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.

- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

Building Sites

- This soil is well suited to use as building sites.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

RaB—Rayburn loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Rayburn and similar soils: 80 percent

Contrasting Inclusions:
Boykin soils: 10 percent. Boykin soils have sandy epipedons 20 to 40 inches thick and have loamy control sections.
Kitterll soils: 5 percent. Kitterll soils are on associated convex, mid and lower slopes, and have sola less than 20 inches thick.
Rogan soils: 5 percent. Rogan soils are on smoother and flatter slopes usually slightly lower in the landscape.

Component Description

Rayburn

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Clayey residuum
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Low (About 4.0 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: About 30 to 54 inches, perched; from January to February, and December
Runoff class: Low
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 6 inches—moderately acid, brown loam

Subsoil:
6 to 12 inches—very strongly acid, dark red clay
12 to 27 inches—very strongly acid, gray, dark reddish brown and reddish brown clay
27 to 40 inches—very strongly acid, light brownish gray clay with redoximorphic concentrations in shades of red

Substratum:
40 to 50 inches—extremely acid, light brownish gray strongly cemented tuffaceous siltstone with texture of silty clay

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and helps to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and

building maintenance. Special design of structures is needed to prevent damage caused by wetness.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The limited depth to bedrock reduces the filtering capacity of this soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

RaD—Rayburn fine sandy loam, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Rayburn and similar soils: 90 percent

Contrasting Inclusions:
Hillister soils: 5 percent. Hillister soils have sandy epipedons 20 to 40 inches thick and have loamy control sections.
Shankler soils: 5 percent. Shankler soils are on similar or more sloping landscape positions and have loamy fine sand A horizons greater than 20 inches thick.

Component Description

Rayburn

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Side slope
Parent material: Catahoula Formation
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 6.6 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 30 to 54 inches, perched; February, and December
Runoff class: High
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 5 inches—strongly acid, dark brown fine sandy loam

Subsoil:
5 to 13 inches—very strongly acid, light olive brown clay
13 to 21 inches—very strongly acid, pinkish gray, strong brown, and red clay
21 to 33 inches—very strongly acid, red clay
33 to 43 inches—very strongly acid, light gray clay

Substratum:
43 to 52 inches—extremely acid, light gray clay
52 to 72 inches—extremely acid, light gray silty clay strongly cemented tuffaceous siltstone with texture of silty clay

Use and Management Considerations

Cropland

- This soil is not suited to cropland.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Steep slopes create unsafe operating conditions, reduce the operating efficiency of log trucks, and restrict the use of some mechanical planting equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. Special design of structures is needed to prevent damage caused by wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the slope.

ReB—Redco clay, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Redco and similar soils: 90 percent

Contrasting Inclusions:
Woodville soils: 10 percent. Woodville soils have argillic horizons and are on slightly higher positions.

Component Description

Redco

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Clayey marine deposits
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 6.8 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown clay

Subsoil:
5 to 10 inches—very strongly acid, grayish brown clay
10 to 80 inches—very strongly acid, light gray clay

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Clods may form if the soil is tilled when wet.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops is restricted by the very high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and restrict the operation of harvesting equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of this soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

ReD—Redco clay, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Redco and similar soils: 90 percent

Contrasting Inclusions:
Woodville soils: 10 percent. Woodville soils have a Bt horizon and are on slightly higher positions.

Component Description

Redco

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Side slope
Parent material: Clayey marine deposits
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 6.9 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: High
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 5 inches—strongly acid, grayish brown clay

Subsoil:
5 to 14 inches—very strongly acid, light brownish gray clay
14 to 80 inches—very strongly acid, light gray clay

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Clods may form if the soil is tilled when wet.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops is restricted by the very high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Slope restricts the use of some mechanical planting equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the

efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

RrB—Rogan gravelly fine sandy loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Rogan and similar soils: 90 percent

Contrasting Inclusions:
Doucette soils: 5 percent. Doucette soils are on similar or more sloping landscape positions and have loamy fine sand horizons greater than 20 inches thick.
Urland soils: 5 percent. Urland soils are on slightly higher smooth slopes, contain less than 5 percent plinthite, and have redder hues.

Component Description

Rogan

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy marine deposits
Slope: 1 to 5 percent
Surface fragments: About 40 percent of surface covered by gravels
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 9.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 4 inches—moderately acid, brown gravelly fine sandy loam

Subsurface layer:
4 to 14 inches—moderately acid, pale brown gravelly fine sandy loam
14 to 20 inches—moderately acid, very pale brown gravelly fine sandy loam

Subsoil:
20 to 29 inches—strongly acid, yellowish red gravelly sandy clay loam
29 to 38 inches—very strongly acid, reddish yellow sandy clay loam
38 to 61 inches—very strongly acid, yellowish brown sandy clay loam
61 to 72 inches—very strongly acid, brownish yellow, light gray, and dark yellowish brown clay loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and help to minimize soil loss by erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Building Sites

- This soil is well suited to use as building sites.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

RrF—Rogan soils, 1 to 5 percent slopes, graded

Map Unit Composition

Major Components:
Rogan and similar soils: 90 percent

Contrasting Inclusions:
Boykin soils: 5 percent. Boykin soils are on similar or more sloping landscape positions and have loamy fine sand horizons greater than 20 inches thick.

Urland soils: 5 percent. Urland soils are on slightly higher smooth slopes, contain less than 5 percent plinthite, and have redder hues.

Component Description

Rogan

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Loamy marine deposits
Slope: 1 to 5 percent
Surface fragments: About 5 percent of the surface covered by gravel
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 3 inches—very strongly acid, brownish yellow gravelly fine sandy loam

Subsoil:
3 to 14 inches—very strongly acid, brownish yellow gravelly sandy clay loam
14 to 37 inches—very strongly acid, brownish yellow sandy clay loam
37 to 59 inches—very strongly acid, red, brownish yellow and light gray sandy clay loam
59 to 70 inches—very strongly acid, brownish yellow sandy clay loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and help to minimize soil loss by erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Gravels restrict the use of equipment during site preparation for planting or seeding.

Building Sites

- This soil is well suited to use as building sites.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

SeD—Sawlit-Sawtown complex, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Sawlit and similar soils: 45 percent
Sawtown and similar soils: 35 percent

Contrasting Inclusions:
Mollville soils: 20 percent. Mollville soils are in depressions, have intrusions of albic material in the upper B horizon, and have gray colors near the surface.

Component Description

Sawlit

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Depression
Parent material: Clayey marine deposits
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 00.01 in/hr)
Available water capacity: High (About 9.2 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 24 to 42 inches, perched; from January to May
Runoff class: Medium
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 9 inches—very strongly acid, dark grayish brown loam

Subsurface layer:
9 to 12 inches—very strongly acid, light yellowish brown loam with redoximorphic concentrations in shades of brown and depletions in shades of gray

Subsoil:
12 to 25 inches—very strongly acid, reddish yellow, light brownish gray, light yellowish brown, and grayish brown sandy clay loam with redoximorphic concentrations in shades of red and brown

25 to 31 inches—very strongly acid, light brownish gray and gray clay loam with redoximorphic concentrations in shades of red and brown
31 to 43 inches—very strongly acid, light brownish gray and light gray clay loam with redoximorphic concentrations in shades of red and brown
43 to 57 inches—very strongly acid, gray and light gray clay with redoximorphic concentrations in shades of red, yellow, and brown
57 to 80 inches—very strongly acid, light gray and light gray clay with redoximorphic concentrations in shades of yellow and brown

Sawtown

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Mound
Parent material: Clayey marine deposits
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 36 to 54 inches, perched; from January to April, and December
Runoff class: Medium
Non-irrigated land capability: 2e

Typical Profile

Surface layer:
0 to 8 inches—moderately acid, brown fine sandy loam

Subsurface layer:
8 to 17 inches—moderately acid, very pale brown fine sandy loam with redoximorphic concentrations in shades of brown
17 to 19 inches—moderately acid, very pale brown fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
19 to 36 inches—very strongly acid, yellowish brown sandy clay loam with redoximorphic concentrations in shades of brown
36 to 49 inches—very strongly acid, yellowish brown sandy clay loam with redoximorphic concentrations in shades of red and brown
49 to 60 inches—very strongly acid, yellowish brown clay loam with redoximorphic concentrations in shades of red and depletions in shades of gray
60 to 80 inches—very strongly acid, yellowish brown clay loam with redoximorphic concentrations in shades of red and depletions in shades of gray

Use and Management Considerations

Cropland

- All areas are prime farmland.
- The rooting depth of crops may be restricted by the high clay content.

Pastureland

- These soils are well suited to pasture.

Woodland

- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.
- These soils are poorly suited to building site development, and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of these soils may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in these soils below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The low strength of these soils is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

ShB—Shankler loamy sand, 1 to 8 percent slopes

Map Unit Composition

Major Components:
Shankler and similar soils: 80 percent

Contrasting Inclusions:
Newco soils: 10 percent. Newco soils are on similar positions and have more clayey subsoils.
Pinetucky soils: 5 percent. Pinetucky soils are on similar positions and lack sandy epipedons 20 to 40 inches thick.

Component Description

Shankler

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Sandy coastal plain sediments

Slope: 1 to 8 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Moderate (About 6.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 3s

Typical Profile

Surface layer:
0 to 6 inches—strongly acid, dark grayish brown loamy sand

Subsurface layer:
6 to 16 inches—strongly acid, brown loamy sand
16 to 30 inches—strongly acid, pale brown loamy sand with redoximorphic concentrations in shades of yellow
30 to 41 inches—strongly acid, very pale brown loamy sand
41 to 48 inches—strongly acid, very pale brown loamy fine sand and yellowish brown loamy fine sand
48 to 52 inches—strongly acid, percent very pale brown loamy fine sand and light yellowish brown loamy fine sand

Subsoil:
52 to 60 inches—very strongly acid, yellowish red fine sandy loam with redoximorphic concentrations in shades of red
60 to 80 inches—very strongly acid, red sandy clay loam with redoximorphic concentrations in shades of red and yellow

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland (fig. 10)

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.

Figure 10.—An area that was clear-cut and replanted to pine. This area is in the Shankler loamy sand, 1 to 8 percent slopes map unit.

- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Slope may restrict the use of some mechanical planting equipment.
- A loss of soil productivity may occur following an episode of uncontrolled fire.

Building Sites

- The high content of sand or gravel reduces the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- Special design and installation techniques are needed for the effluent distribution lines because of the slope.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

ShD—Shankler loamy sand, 8 to 15 percent slopes

Map Unit Composition

Major Components:
Shankler and similar soils: 85 percent

Contrasting Inclusions:

Bonwier soils: 5 percent. Bonwier soils have more clayey subsoil and are on steeper side slopes.

Newco soils: 10 percent. Newco soils are on similar positions and have more clayey subsoil.

Component Description

Shankler

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Sandy coastal plain sediments
Slope: 8 to 15 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderate (About 0.6 in/hr)
Available water capacity: Low (About 6.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 4 inches—strongly acid, brown loamy sand

Subsurface layer:
4 to 15 inches—strongly acid, yellowish brown loamy sand
15 to 24 inches—very strongly acid, yellowish brown loamy sand
24 to 50 inches—very strongly acid, pale brown loamy sand

Subsoil:
50 to 70 inches—very strongly acid, red sandy clay loam with redoximorphic concentrations in shades of red and yellow
70 to 80 inches—very strongly acid, red sandy clay loam with redoximorphic concentrations in shades of red and yellow

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduces the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- Slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Slope may restrict the use of some mechanical planting equipment.
- A loss of soil productivity may occur following an episode of uncontrolled fire.

Building Sites

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of sand or gravel reduces the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- Special design and installation techniques are needed for the effluent distribution lines because of the slope.

Local Roads and Streets

- Designing local roads and streets is difficult because of the slope.

SiC—Silsbee fine sandy loam, 3 to 5 percent slopes

Map Unit Composition

Major Components:
Silsbee and similar soils: 90 to 95 percent

Contrasting Inclusions:
Kirbyville soils: 0 to 5 percent. These soils are moderately well drained and are on a toeslope landscape position.
Kountze soils: 0 to 5 percent. The soils have less than 18 percent clay in the particle-size control section and are on a foot slope landscape position.

Otanya soils: 1 to 10 percent. These soils have subsoil in shades of yellow and are on a similar landscape position.

Component Description

Silsbee

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Inland dissected coastal plain
Hillslope positions: Backslopes
Parent material: Loamy sediments of the Lissie Formation
Slope: 3 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.2 in/hr)
Available water capacity: High (About 12.0 inches)
Shrink-swell potential: Low (About 1.8 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 6 inches—very strongly acid, brown fine sandy loam

Subsurface layer:
6 to 13 inches—strongly acid, light yellowish brown fine sandy loam
13 to 23 inches—moderately acid, light yellowish brown and strong brown fine sandy loam

Subsoil:
23 to 34 inches—strongly acid, yellowish red sandy clay loam
34 to 56 inches—very strongly acid, strong brown sandy clay loam
56 to 80 inches—very strongly acid, brownish yellow sandy clay loam with redoximorphic concentrations in shades of red

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduces the runoff rate and helps to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduces the hazard of wind erosion.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.

Building Sites

- This soil is well suited to use as building sites.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

SiD—Silsbee fine sandy loam, 5 to 12 percent slopes

Map Unit Composition

Major Components:
Silsbee and similar soils: 95 to 100 percent

Contrasting Inclusions:
Otanya soils: 1 to 5 percent. These soils have subsoil in shades of yellow and are on a similar landscape position.

Component Description

Silsbee

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Inland dissected coastal plain
Hillslope positions: Backslopes
Parent material: Loamy sediments of the Lissie Formation
Slope: 5 to 12 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.2 in/hr)
Available water capacity: High (About 12.0 inches)
Shrink-swell potential: Low (About 1.8 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, brown fine sandy loam

Subsurface layer:
5 to 15 inches—very strongly acid, light yellowish brown and pale brown fine sandy loam

Subsoil:
15 to 49 inches—strongly acid, yellowish red sandy clay loam
49 to 71 inches—strongly acid, strong brown sandy clay loam
71 to 80 inches—strongly acid, strong brown sandy clay loam with redoximorphic concentrations in shades of red

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts operation of harvesting equipment.
- The steeper slopes create unsafe operating conditions and reduce the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- Special design and installation techniques are needed for the effluent distribution lines because of the slope. Seepage of poorly treated effluent is a concern.

Local Roads and Streets

- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the slope.

SnA—Sorter-Dallardsville complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Sorter and similar soils: 50 to 60 percent
Dallardsville and similar soils: 30 to 40 percent

Contrasting Inclusions:
Kirbyville soils: 0 to 10 percent. These soils have more than 18 percent clay in the particle-size control section, are moderately well drained, and are on a higher landscape position.

Olive soils: 0 to 10 percent. These soils have a fragipan and are on a lower landscape position.
Waller soils: 0 to 15 percent. These soils have more than 18 percent clay in the particle-size control section, have less salinity, and are on a similar landscape position as the sorter soils.

Component Description

Sorter

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Flat coastal plain
Landform: Flat
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: High (About 10.1 inches)
Shrink-swell potential: Low (About 1.2 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to March, and December
Depth to seasonal water saturation: At the surface, perched; from January to May, and November to December
Runoff class: Negligible
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 3 inches—extremely acid, dark grayish brown very fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
3 to 24 inches—very strongly acid, gray very fine sandy loam with redoximorphic concentrations in shades of red and yellow
24 to 41 inches—very strongly acid, gray very fine sandy loam with redoximorphic concentrations in shades of yellow, and depletions in shades of gray
41 to 51 inches—very strongly acid, light gray and pink very fine sandy loam with redoximorphic concentrations in shades of red and yellow
51 to 78 inches—very strongly acid, light gray and pink very fine sandy loam with redoximorphic concentrations in shades of red and yellow, and depletions in shades of gray
78 to 80 inches—strongly acid, pinkish gray and pink very fine sandy loam with redoximorphic concentrations in shades of yellow

Dallardsville

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Flat coastal plain
Landform: Pimple mound
Parent material: Loamy eolian deposits over loamy fluviomarine deposits of Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: Very high (About 14.1 inches)
Shrink-swell potential: Moderate (About 3.7 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 36 to 48 inches, apparent; perched; from January to March, and December
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 7 inches—extremely acid, yellowish brown very fine sandy loam

Subsurface layer:
7 to 21 inches—extremely acid, pink very fine sandy loam
21 to 31 inches—extremely acid, pink and reddish yellow very fine sandy loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
31 to 38 inches—extremely acid, pink and reddish yellow very fine sandy loam with redoximorphic concentrations in shades of red, yellow, and brown, and depletions in shades of gray
38 to 47 inches—extremely acid, light yellowish brown and pink very fine sandy loam with redoximorphic concentrations in shades of red and brown
47 to 61 inches—extremely acid, brownish yellow and light gray very fine sandy loam with redoximorphic concentrations in shades of red and brown
61 to 75 inches—extremely acid, brownish yellow and light gray very fine sandy loam with redoximorphic concentrations in shades of red and brown
75 to 80 inches—extremely acid, reddish yellow and light gray very fine sandy loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.
- Soil wetness and ponding restricts the safe use of this soil by log trucks.

Building Sites

- Water tends to pond on these soils. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic Tank Absorption Fields

- Sorter soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding of the Sorter soils affects the ease of excavation and grading and limits the bearing capacity of this soil.

SsA—Spurger-Caneyhead complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Spurger and similar soils: 30 to 55 percent
Caneyhead and similar soils: 20 to 35 percent

Contrasting Inclusions:
Belrose soils: 0 to 7 percent. These soils are loamy throughout and are moderately well drained.
Evadale soils: 15 to 30 percent. Evadale soils have a fine textured control section.
Kenefick soils: 0 to 15 percent. These soils are loamy throughout and are well drained.

Component Description

Spurger

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain
Landform: Riser on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.9 inches)
Shrink-swell potential: Very high (About 10.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 60 to 72 inches, apparent; from January to February, and December
Runoff class: Low
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 4 inches—extremely acid, brown very fine sandy loam

Subsurface layer:
4 to 8 inches—extremely acid, pale brown loam

Subsoil:
8 to 52 inches—extremely acid, red clay and silty clay
52 to 58 inches—extremely acid, light brownish gray silty clay
58 to 80 inches—extremely acid, yellowish brown and light brownish gray fine sandy loam

Caneyhead

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain
Landform: Swale on terrace
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 11.4 inches)
Shrink-swell potential: Moderate (About 4.0 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to June, and December
Depth to seasonal water saturation: At the surface, apparent; from January to June, and December
Runoff class: Negligible
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 3 inches—very strongly acid, grayish brown silt loam with redoximorphic concentrations in shades of brown

Subsurface layer:
3 to 12 inches—very strongly acid, light brownish gray silt loam with redoximorphic concentrations in shades of brown
12 to 19 inches—very strongly acid, light gray and gray silt loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
19 to 28 inches—very strongly acid, gray and light brownish gray silt loam with redoximorphic concentrations in shades of yellow and brown
28 to 41 inches—extremely acid, gray and light brownish gray silty clay loam with redoximorphic concentrations in shades of yellow and brown
41 to 52 inches—extremely acid, gray and light gray silty clay loam with redoximorphic concentrations in shades of yellow and brown
52 to 80 inches—extremely acid, pale yellow and light gray silt loam with redoximorphic concentrations in shades of yellow and brown

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- The rooting depth of crops may be restricted by the high clay content.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- The Spurger soil is well suited to pasture. The Caneyhead soils are not suited because of the flooding and ponding hazard.

Woodland

- Standing water on the Caneyhead soils can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Ponding on the Caneyhead soils restricts the safe use of roads by log trucks.
- The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- The Caneyhead soil is not suited to building site development.
- Water tends to pond on the Caneyhead soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The Caneyhead soil is not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding on the Caneyhead soils affects the ease of excavation and grading and limits the bearing capacity of this soil.
- The Spurger soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of these soils is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

StM—Stringtown-Bonwier complex, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Stringtown and similar soils: 60 to 75 percent
Bonwier and similar soils: 20 to 30 percent

Contrasting Inclusions:

Hillister soils: 5 to 10 percent. Hillister soils have a sandy epipedon more than 20 inches thick, and are on steep sloping side slope positions.

Component Description

Stringtown

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hill slope
Parent material: Weakly consolidated loamy sediments
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 10 inches—very strongly acid, brown fine sandy loam

Subsoil:
10 to 16 inches—very strongly acid, brownish yellow sandy clay loam
16 to 52 inches—very strongly acid, strong brown sandy clay loam
52 to 58 inches—very strongly acid, strong brown loam

Substratum:
58 to 72 inches—very strongly acid, yellowish red noncemented loam

Bonwier

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Side slope
Parent material: Stratified loamy and clayey weakly consolidated sediments
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Well drained
Slowest permeability: Slow (About 0.2 in/hr)
Available water capacity: Low (About 4.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 3 inches—moderately acid, brown fine sandy loam

Subsurface layer:
3 to 13 inches—moderately acid, light yellowish brown fine sandy loam

Subsoil:
13 to 23 inches—strongly acid, brownish yellow sandy clay
23 to 34 inches—very strongly acid, brownish yellow sandy clay

Substratum:
34 to 40 inches—very strongly acid, yellowish red noncemented sandy loam
40 to 51 inches—very strongly acid, reddish yellow noncemented sandy loam
51 to 63 inches—very strongly acid, brownish yellow noncemented fine sandy loam

Use and Management Considerations

Cropland

- These soils are not suited to cropland.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, and increases the cost of constructing haul roads and log landings.
- Slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and restricts the use of some mechanical planting equipment.
- Rock fragments on the surface may obstruct the use of mechanical planting equipment.

Building Sites

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- Designing local roads and streets is difficult because of the slope.

TuB—Turkey sand, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Turkey and similar soils: 85 to 90 percent

Contrasting Inclusions:
Belrose soils: 0 to 5 percent. Belrose soils have an argillic horizon and are on lower landscape positions.
Caneyhead soils: 0 to 5 percent. Caneyhead soils are poorly drained and are on lower landscape positions.
Kenefick soils: 0 to 5 percent. Kenefick soils have a fine-loamy particle-size control section and are on similar landscape positions.

Component Description

Turkey

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain
Landform: Riser on terraces
Parent material: Sandy alluvium of late Pleistocene age
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 6.0 in/hr)
Available water capacity: Very low (About 2.4 inches)
Shrink-swell potential: Low (About 0.3 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 80 inches, apparent; from January to December
Runoff class: Negligible
Non-irrigated land capability: 4s

Typical Profile

Surface layer:
0 to 5 inches—very strongly acid, very dark grayish brown sand

Subsoil:
5 to 10 inches—very strongly acid, brown sand
10 to 52 inches—very strongly acid, yellowish red sand
52 to 80 inches—very strongly acid, strong brown sand

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- This soil provides poor summer pasture.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.

Woodland

- The limited available water capacity inhibits root development and increases the seedling mortality rate.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- This soil is well suited to use as building sites.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local Roads and Streets

- This soil is well suited to use as local roads and streets.

TyA—Tyden-Babco complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Tyden and similar soils: 50 to 70 percent
Babco and similar soils: 25 to 35 percent

Contrasting Inclusions:
Dallardsville soils: 10 to 15 percent. Dallardsville soils are moderately well drained and on higher positions.
Olive soils: 0 to 10 percent. Olivier soils are Fragiudalfs, somewhat poorly drained, and formed in loess.
Sorter soils: 0 to 10 percent. Sorter soils are poorly drained. These soils remain saturated for long periods, especially during winter and spring.

Component Description

Tyden

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain

Landform: Channels
Parent material: Loamy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Very poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Ponding hazard: Frequent, from January to April, and December
Depth to seasonal water saturation: From the surface to a depth of 12 inches, apparent; from January to April, and December
Runoff class: Low
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 6 inches—extremely acid, black silt loam
6 to 13 inches—extremely acid, very dark gray very fine sandy loam

Subsurface layer:
13 to 19 inches—extremely acid, dark gray and light brownish gray very fine sandy loam
19 to 28 inches—extremely acid, dark grayish brown and grayish brown fine sandy loam with redoximorphic concentrations in shades of brown
28 to 41 inches—extremely acid, grayish brown and light brownish gray fine sandy loam with redoximorphic concentrations in shades of brown

Subsoil:
41 to 58 inches—extremely acid, light brownish gray and grayish brown fine sandy loam with redoximorphic concentrations in shades of brown
58 to 73 inches—extremely acid, pinkish gray and light brownish gray fine sandy loam with redoximorphic concentrations in shades of brown
73 to 80 inches—extremely acid, pinkish gray and light brownish gray loam with redoximorphic concentrations in shades of brown

Babco

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain
Landform: Ridge
Parent material: Sandy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.2 in/hr)
Available water capacity: High (About 9.7 inches)
Shrink-swell potential: Low (About 0.7 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 24 to 36 inches, apparent; from January to April, and December
Runoff class: Medium
Non-irrigated land capability: 3s

Typical Profile

Surface layer:
0 to 8 inches—extremely acid, very dark gray loamy fine sand

Subsurface layer:
8 to 12 inches—extremely acid, light brownish gray loamy fine sand

Subsoil:
12 to 16 inches—extremely acid, dark brown fine sandy loam
16 to 22 inches—extremely acid, brown fine sandy loam with redoximorphic concentrations in shades of yellow and brown, and depletions in shades of gray
22 to 43 inches—very strongly acid, very pale brown fine sandy loam with redoximorphic concentrations in shades of brown, and depletions in shades of gray
43 to 55 inches—very strongly acid, light brownish gray and very pale brown fine sandy loam with redoximorphic concentrations in shades of red and yellow
55 to 67 inches—very strongly acid, light gray and light brownish gray fine sandy loam with redoximorphic concentrations in shades of yellow and brown
67 to 80 inches—very strongly acid, light gray, and light brownish gray fine sandy loam with redoximorphic concentrations in shades of yellow and brown

Use and Management Considerations

Cropland

- Controlling traffic can minimize soil compaction.
- A combination of surface and subsurface drainage helps to remove excess water.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water on the Tyden soils can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.
- Soil wetness and ponding restricts the safe use of these soils by log trucks.
- Uncontrolled burning may destroy organic matter.

Building Sites

- Water tends to pond on the Tyden soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- The Tyden soils are not suited to building site development because of ponding.
- In some areas the dense nature of the subsurface layer increases the difficulty of digging and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The Tyden soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding on the Tyden soils affects the ease of excavation and grading and limits the bearing capacity of this soil.

UrB—Urland fine sandy loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Urland and similar soils: 80 percent

Contrasting Inclusions:
Boykin soils: 10 percent. Boykin soils are on slightly higher convex slopes and have less than 35 percent clay in the upper 20 inches of the argillic horizon. These soils also have loamy fine sand layers greater than 20 inches thick.
Pinetucky soils: 10 percent. Pinetucky soils are on similar positions, have less than 35 percent clay in the upper 20 inches of the argillic horizon, and have plinthite segregations in the subsoil.

Component Description

Urland

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Stratified sandstone and clayey coastal plain sediments
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: 40 to 60 inches (densic)
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.6 in/hr)
Available water capacity: Moderate (About 7.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 5 inches—moderately acid, brown fine sandy loam

Subsurface layer:
5 to 8 inches—strongly acid, brown fine sandy loam

Subsoil:
8 to 13 inches—strongly acid, yellowish red sandy clay loam
13 to 29 inches—very strongly acid, red clay
29 to 49 inches—very strongly acid, pinkish gray, reddish yellow, and red clay loam

Substratum:

49 to 80 inches—very strongly acid, reddish yellow, pinkish gray, and red noncemented sandy clay loam

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops can reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- The stickiness of the soil can reduce the efficiency of mechanical planting equipment.

Building Sites

- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compaction soil material in shallow excavations.

Septic Tank Absorption Fields

- The limited depth to bedrock can reduce the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

VoA—Votaw fine sand, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Votaw and similar soils: 85 to 95 percent

Contrasting Inclusions:
Belrose soils: 0 to 10 percent. Belrose soils are loamy throughout and are on similar to higher landscape positions.
Caneyhead soils: 0 to 5 percent. Caneyhead soils are very poorly drained and are on lower landscape positions.
Kenefick soils: 0 to 5 percent. Kenefick soils are loamy throughout and are on similar to higher landscape positions.
Turkey soils: 1 to 10 percent. Turkey soils are better drained and are on higher landscape positions.

Component Description

Votaw

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain
Landform: Broad flat terrace
Parent material: Sandy alluvium of late Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid (About 2.0 in/hr)
Available water capacity: Low (About 4.2 inches)
Shrink-swell potential: Low (About 0.4 LEP)
Flooding hazard: Rare, from January to December
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 24 to 30 inches, perched; apparent; from January to March, and December
Runoff class: Negligible
Non-irrigated land capability: 3w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, dark grayish brown and light gray fine sand

Subsoil:
4 to 9 inches—strongly acid, yellowish brown and yellowish brown fine sand with redoximorphic concentrations in shades of brown
9 to 15 inches—strongly acid, yellowish brown and yellowish brown fine sand with redoximorphic concentrations in shades of brown
15 to 25 inches—moderately acid, yellowish brown and yellowish brown fine sand with redoximorphic concentrations in shades of brown
25 to 29 inches—moderately acid, yellowish brown and yellowish brown fine sand with redoximorphic concentrations in shades of brown
29 to 47 inches—moderately acid, brownish yellow and light gray fine sand with redoximorphic concentrations in shades of brown
47 to 63 inches—strongly acid, very pale brown and light gray fine sand with redoximorphic concentrations in shades of yellow and brown

63 to 80 inches—strongly acid, light gray fine sand with redoximorphic concentrations in shades of yellow

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- This soil provides poor summer pasture.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of seedbed preparation that minimizes soil disturbance when pastures are renovated conserves soil moisture.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Uncontrolled burning may destroy organic matter.

Building Sites

- Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings. These soils are generally unsuited to home sites. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.
- The high content of sand or gravel can reduce the resistance to sloughing. Shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields

- This soil is poorly suited to septic tank absorption fields. The flooding in areas of this soil on rare occasions will limit the absorption and proper treatment of the effluent from septic systems. Floodwaters may damage some components of septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- Special design of roads and bridges is needed to prevent the damage caused by flooding.

W—Water

This map unit includes streams, lakes, and ponds. These areas are covered with water in most years, at least during the period that is warm enough for plants to grow. Many areas are covered with water year-round.

WbA—Waller-Dallardsville complex, 0 to 1 percent slopes

Map Unit Composition

Major Components:
Waller and similar soils: 50 to 65 percent
Dallardsville and similar soils: 20 to 40 percent

Contrasting Inclusions:
Kirbyville soils: 1 to 10 percent. Kirbyville soils are moderately well drained and on higher landscape position.
Sorter soils: 1 to 10 percent. Sorter soils have coarse-loamy family and are on similar landscape positions.

Component Description

Waller

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Flat coastal plain
Landform: Flats
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: High (About 10.8 inches)
Shrink-swell potential: Low (About 1.8 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 6 to 18 inches, perched; from January to March, and November to December
Runoff class: Negligible
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, dark gray silt loam with redoximorphic concentrations in shades of brown and black

Subsurface layer:
4 to 9 inches—very strongly acid, gray silt loam with redoximorphic concentrations in shades of pink, brown, and black
9 to 15 inches—very strongly acid, grayish brown and light brownish gray silt loam with redoximorphic concentrations in shades of yellow, brown, and black
15 to 26 inches—very strongly acid, light brownish gray and gray silt loam with redoximorphic concentrations in shades of yellow, brown, and black

Subsoil:
26 to 37 inches—strongly acid, light brownish gray and gray loam with redoximorphic concentrations in shades of yellow, brown, and black
37 to 50 inches—strongly acid, yellowish brown and light brownish gray clay loam with redoximorphic concentrations in shades of red, yellow, and brown, and depletions in shades of gray
50 to 65 inches—strongly acid, yellowish brown and light brownish gray clay loam with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray
65 to 80 inches—strongly acid, yellowish brown and light gray sandy clay loam with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray

Dallardsville

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Flat coastal plain
Landform: Pimple mounds
Parent material: Loamy eolian deposits over loamy fluviomarine deposits of Pleistocene age
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 in/hr)
Available water capacity: Very high (About 13.6 inches)
Shrink-swell potential: Moderate (About 3.7 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 36 to 48 inches, apparent; perched from January to March; and December
Runoff class: Low
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 9 inches—strongly acid, brown very fine sandy loam

Subsurface layer:
9 to 14 inches—strongly acid, yellowish brown very fine sandy loam
14 to 19 inches—strongly acid, yellowish brown and reddish yellow very fine sandy loam with redoximorphic concentrations in shades of yellow and brown

Subsoil:
19 to 27 inches—strongly acid, reddish yellow light yellowish brown loam with redoximorphic concentrations in shades of red, yellow, and brown, depletions in shades of gray
27 to 41 inches—strongly acid, brownish yellow and pale brown loam with redoximorphic concentrations in shades of red and brown
41 to 58 inches—very strongly acid, brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown
58 to 80 inches—very strongly acid, brownish yellow and light brownish gray loam with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- Prime farmland if drained.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment, increases the cost of constructing haul roads and log landings, and restricts the operation of harvesting equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance.
- These soils are poorly suited to building site development and structures may need special design to avoid damage from wetness.

Septic Tank Absorption Fields

- These soils are not suitable for use as a site for septic tank absorption fields because of the seasonal high water table.

Local Roads and Streets

- The seasonal high water table affects the ease of excavation and grading and can reduce the bearing capacity of this soil.

WcB—Wiergate clay, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Wiergate and similar soils: 90 percent

Contrasting Inclusions:
Woodville soils: 10 percent. Woodville soils are mostly slightly higher in the landscape and have argillic horizons.

Component Description

Wiergate

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Weakly consolidated calcareous clays and marls

Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 8.3 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 4e

Typical Profile

Surface layer:
0 to 22 inches—moderately alkaline, very dark gray clay
22 to 28 inches—moderately alkaline, dark gray clay

Subsoil:
28 to 37 inches—strongly alkaline, light brownish gray clay
37 to 48 inches—strongly alkaline, light yellowish brown clay
48 to 69 inches—strongly alkaline, light brownish gray clay
69 to 80 inches—strongly alkaline, light gray clay

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Clods may form if the soil is tilled when wet.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops is restricted by the very high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- Restricting grazing during wet periods can minimize compaction.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

WnB—Woodville very fine sandy loam, 1 to 5 percent slopes

Map Unit Composition

Major Components:
Woodville and similar soils: 80 percent

Contrasting Inclusions:
Burkeville soils: 5 percent. Burkeville soils are on slightly lower side slopes and concave positions and contain calcium concretions.
Redco soils: 10 percent. Redco soils have clayey surface layers, are on the same positions and on slightly convex positions nearby.
Wiergate soils: 5 percent. Wiergate soils are on slightly lower side slopes and concave positions and contain calcium concretions.

Component Description

Woodville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Interfluve
Parent material: Unconsolidated clayey coastal plain sediments
Slope: 1 to 5 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 9.1 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Low
Non-irrigated land capability: 3e

Typical Profile

Surface layer:
0 to 4 inches—very strongly acid, brown very fine sandy loam

Subsurface layer:
4 to 8 inches—very strongly acid, pale brown very fine sandy loam

Subsoil:
8 to 12 inches—very strongly acid, yellowish red clay
12 to 22 inches—very strongly acid, red clay
22 to 80 inches—very strongly acid, light gray clay

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

WnD—Woodville very fine sandy loam, 5 to 15 percent slopes

Map Unit Composition

Major Components:
Woodville and similar soils: 85 percent

Contrasting Inclusions:

Burkeville soils: 5 percent. Burkeville soils are on slightly lower side slopes and concave positions and contain calcium concretions.

Redco soils: 10 percent. Redco soils have clayey surface layers, are on the same positions and on slightly convex positions nearby.

Component Description

Woodville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Hills side slope
Parent material: Unconsolidated clayey coastal plain sediments
Slope: 5 to 15 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 9.0 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: Greater than 6 feet
Runoff class: Medium
Non-irrigated land capability: 6e

Typical Profile

Surface layer:
0 to 3 inches—moderately acid, brown very fine sandy loam

Subsurface layer:
3 to 7 inches—strongly acid, light yellowish brown very fine sandy loam

Subsoil:
7 to 17 inches—very strongly acid, red clay
17 to 34 inches—very strongly acid, reddish yellow clay
34 to 40 inches—very strongly acid, light gray clay
40 to 51 inches—moderately acid, brownish yellow and light gray clay
51 to 65 inches—slightly alkaline, light gray clay
65 to 80 inches—moderately alkaline, pale yellow, brownish yellow, and light gray clay

Use and Management Considerations

Cropland

- This soil is not suited to cropland.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland

- The loss of vegetative cover on the soil surface increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- This soil becomes sticky when wet because of high clay content. The stickiness increases the cost of constructing haul roads and log landings, reduces the efficiency of mechanical planting equipment, and restricts the use of equipment for site preparation to drier periods.
- Slope creates unsafe operating conditions and reduces the operating efficiency of log trucks, and restricts the use of some mechanical planting equipment.

Building Sites

- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local Roads and Streets

- This soil may not be suitable for use as base material for local roads and streets because of shrinking and swelling.
- The low strength of this soil is not suitable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Designing local roads and streets is difficult because of the slope.

WnS—Woodville-Sawlit complex, 1 to 3 percent slopes

Map Unit Composition

Major Components:
Woodville and similar soils: 50 percent
Sawlit and similar soils: 35 percent

Contrasting Inclusions:
Mollville soils: 10 percent. Mollville soils are in depressions, have intrusions of albic material in the upper B horizon, and have gray colors near the surface.
Hainesville soils: 5 percent. Hainesville soils are on slightly higher terrace positions adjoining low ridges or mounds, and they have a sandy surface layer.

Component Description

Woodville

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Alluvial flat depression

Parent material: Clayey marine deposits
Slope: 1 to 3 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: Moderate (About 8.2 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: Frequent
Runoff class: Medium
Non-irrigated land capability: 4w

Typical Profile

Surface layer:
0 to 7 inches—strongly acid, brown loam

Subsoil:
7 to 10 inches—strongly acid, brownish yellow clay with redoximorphic concentrations in shades of red and brown, and depletions in shades of gray
10 to 21 inches—strongly acid, light gray clay with redoximorphic concentrations in shades of yellow
21 to 49 inches—very strongly acid, light gray clay with redoximorphic concentrations in shades of yellow and red, and red iron-manganese masses
49 to 80 inches—very strongly acid, light gray clay loam

Sawlit

MLRA: 133B—Western Coastal Plain
Landscape: Coastal plain
Landform: Alluvial flat mound
Parent material: Clayey marine deposits
Slope: 0 to 1 percent
Surface fragments: None
Depth to restrictive feature: None
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.001 in/hr)
Available water capacity: High (About 9.2 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: None
Depth to seasonal water saturation: At a depth of 24 to 42 inches, perched; from January to May
Runoff class: Medium
Non-irrigated land capability: 2w

Typical Profile

Surface layer:
0 to 6 inches—slightly acid, brown loam

Subsurface layer:
6 to 14 inches—moderately acid, yellowish brown loam

Subsoil:
14 to 20 inches—very strongly acid, pink and reddish yellow sandy loam
20 to 33 inches—very strongly acid, strong brown and very pale brown sandy clay loam with redoximorphic depletions in shades of gray

33 to 54 inches—very strongly acid, gray and pink clay with redoximorphic concentrations in shades of red, yellow, and brown
54 to 80 inches—very strongly acid, light gray and pink clay with redoximorphic concentrations in shades of red and brown

Use and Management Considerations

Cropland

- All areas are prime farmland.
- Maintaining vegetative cover and establishing windbreaks can reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- The rooting depth of crops may be restricted by the high clay content.
- A combination of surface and subsurface drainage helps to remove excess water.
- The movement of water into subsurface drains is restricted.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

Pastureland

- These soils are well suited to pasture.

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water on the Woodville soils can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of these soils may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness and ponding restrict the safe use of this soil by log trucks.
- The stickiness of the soil can reduce the efficiency of mechanical planting equipment.

Building Sites

- These soils are not suited to building site development.
- Water tends to pond on the Woodville soil. The period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed.
- The high content of clay in the soil below the surface layer increases the difficulty of digging, filling, and compacting soil material in shallow excavations.

Septic Tank Absorption Fields

- The Woodville soils are not suitable for use as septic tank absorption fields because of ponding.

Local Roads and Streets

- Ponding on the Woodville soils affects the ease of excavation and grading and limits the bearing capacity of this soil.
- These soils may not be suitable for use as base material for local roads and streets because of shrinking and swelling.

- The low strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 5 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 221,942 acres in the survey area, or about 37 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county.

A recent trend in land uses in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in Table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. In addition, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for rangeland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, and lawns.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is also explained.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Texas AgriLife Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in Table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in Table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or Texas AgriLife Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes. Capability classes are listed for each map unit in the section “Detailed Soil Map Units”.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (16).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1, there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Woodland Management Groups

The soils in Tyler County that are suitable for wood crops have been placed in 27 groups according to their suitability for woodland management. Each group is made up of soils with similar properties and that respond to similar management practices. The landscape position and chemical and physical properties of the soils were considered in assigning soils to each group. The soils in group 26 are not suitable for pine production.

Woodland Management Group 1. This group includes soil mapping units: Oz—Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded; EtA—Estes part of the Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded.

These soils occur on flood plains and have a very high potential for hardwood management. Common overstory trees include water oak, willow oak, and laurel oak; green ash; sugarberry; water hickory: black gum and sweet gum. Overcup oak may be present on wetter sites. A few, scattered loblolly pine may be found on drier sites of Estes. The 50-year site index for sweet gum and bottomland oaks ranges from 90 to 105 feet. The yield from an unmanaged, natural stand of sweet gum over a 50-year period is approximately 305 board feet (Doyle Rule) per acre per year. Although management can substantially increase this yield, it should also include attention to streamside management zone considerations to protect water quality. Access and equipment operability on these soils is poor for long periods because of flooding and wetness. It will be necessary to suspend harvesting and other operations during wet periods. Rutting during these operations can be severe because of the low strength of these soils. Flooding also makes these soils poorly suitable for log landings and roads. Road construction should be limited. Planting is made difficult by wetness and the sticky nature of these soils. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation must also include consideration of the possibility of flooding, in order to prevent contamination of surface waters.

Woodland Management Group 2. This group includes soil mapping units: KoA—Koury very fine sandy loam, 0 to 1 percent, frequently flooded.

This soil occurs on flood plains and has a very high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, white oak, and cherry bark oak; green ash; American elm; sugarberry; and sweet gum. Shortleaf pine may occur on drier sites and Willow oak may occur on wetter sites. Scattered beech may also be found. The 50-year site index for loblolly pine averages 105 feet (approximately 62 to 75 feet on a 25-year curve). For bottomland oaks it averages 85 to 100 feet. It also exceeds 100 feet (50-year site index curve) for bottomland hardwoods. The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 460 board feet (Doyle Rule) or 115 cubic feet per acre per year. Although management can substantially increase this yield, it should also include attention to streamside management zone considerations to protect water quality. Access and equipment operability on this soil is poor during wet periods because of flooding. It may be necessary to suspend harvesting and other operations during wet periods. Frequent flooding also makes this soil only moderately suitable for log landings and roads. Road construction should be limited. When this soil is wet, its low strength will lead to severe rutting problems and make it poorly suitable for road construction. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation must also include consideration of the possibility of flooding, in order to prevent contamination of surface waters. Wetness may cause a moderate level of pine seedling mortality.

Woodland Management Group 3. This group includes soil mapping units: RaB—Rayburn fine sandy loam, 1 to 5 percent slopes; RaD—Rayburn fine sandy loam, 5 to 15 percent slopes.

This soil is on uplands and has a high potential for woodland (pine) management. Common trees of the overstory include loblolly pine, longleaf pine, and shortleaf pine; post oak, southern red oak, and white oak; ash; sweetgum; elm; and hickory. The 50-year site index for loblolly pine averages 85 to 90 feet (approximately 60 feet on a 25-year curve). The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 330m board feet (Doyle Rule) or 90 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability is

poor during and, for a short time, after wet periods because of a perched water table. Wet weather limitations may be necessary to prevent rutting and excessive erosion on the steeper slopes. Low strength makes this soil only moderately suitable for roads and log landings. Site preparation and tree planting operations will be affected by the sticky nature of this soil when it is wet. Tree planting should be planned for the drier early part of the planting season. Also, because clay occurs within ten inches of the surface, care must be taken to assure proper planting depth; otherwise a moderate level of seedling mortality can occur. The moderate level of runoff on this soil means precautions are needed when using herbicides for site preparation and release in order to prevent contamination of surface waters.

Woodland Management Group 4. This group includes soil mapping units: StM—Stringtown part of the Stringtown-Bonwier Complex, 5 to 15 percent slopes; MpA—Besner part of the Mollville-Besner complex, 0 to 1 percent slopes; SeD—Sawtown part of the Sawlit-Sawtown complex, 1 to 3 percent slopes.

These deep soils are on uplands and stream terraces (some occur as mounds), and have a high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly and shortleaf pine; post oak, white oak, southern red oak, and water oak; sweetgum; white ash; and elm. Longleaf pine may be found on Stringtown soils. The 50-year site index for loblolly pine averages 90 feet (60 feet on a 25-year curve), but ranges from 85 to 100 feet. The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 330 board feet (Doyle Rule) or 90 cubic feet per acre per year. Management can substantially increase this yield. The only problem associated with these soils is the somewhat limited access and equipment operability during wet periods when rutting can be a moderate concern. Short term restrictions may be necessary at these times. Also, steeper slopes may occur in some mapping units and in these areas attention should be given to minimizing erosion during road construction and maintenance, as well as site preparation.

Woodland Management Group 5. This group includes soil mapping units: BoB—Boykin loamy sand, 1 to 5 percent slopes; DoB—Doucette loamy sand, 1 to 5 percent slopes; HhD—Hillister loamy sand, 5 to 15 percent slopes (fig. 11); ShB—Shankler loamy sand, 1 to 8 percent slopes; ShD—Shankler loamy sand, 8 to 15 percent slopes.

These sandy soils are on uplands and have a high potential for pine management. Common trees of the overstory are loblolly pine, shortleaf pine, and longleaf pine; sweetgum; post oak, southern red oak, and white oak; and hickory. Blackjack oak will also occur in the lower portions of the canopy. The site index for loblolly pine averages 90 feet, but can vary depending on slope and slope position. The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 330 board feet per acre per year. Management can substantially increase this yield. Generally, these soils are not very erosive. However, uphill and downhill rutting should be avoided, particularly on steeper slopes. The coarse texture of these soils may restrict equipment use, particularly during dry periods. Modified equipment, such as tandem-axle, wide-tired, or four-wheel drive vehicles, may be needed. The moderate available water capacity of these soils may result in significant seedling mortality during dry years. Successful establishment of planted pine requires attention to proper planting depth and soil compaction. Planting when the soil is moist should be helpful. Control of herbaceous weeds, either during site preparation or as a release during the first growing season, may also be necessary. As slopes increase, the need for proper road design, including the installation of water control devices, such as water bars, becomes more important. Wing ditches should be installed at intervals as close as practical, but released only onto stable outlets. Constructing roads with long, uninterrupted grades on steeper slopes should be avoided. Attention should be given to the possible leaching of fertilizers and of chemicals when herbicides are used for site preparation. Choose appropriate chemicals and application methods to reduce the possibility of contaminating ground water.

Figure 11.—Pine trees on an area of Hillister loamy fine sand, 5 to 15 percent slopes. Hillister soils are In Woodland Management Group 5.

Woodland Management Group 6. This group includes soil mapping units: CgA—Chambliss loamy sand, 0 to 8 percent slopes; CmB—Colmesneil loamy sand, 1 to 8 percent slopes.

These sandy soils are on uplands and are best suited to the production of pine trees. Common trees of the overstory are loblolly pine and shortleaf pine; post oak; and hickory. The site index for loblolly pine averages 85 feet, but can range from 80 to 90 feet depending on slope and slope position. The yield from an unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 280 board feet per acre per year. Management can substantially increase this yield. Generally, these soils are not very erosive. However, to minimize erosion associated with logging, care must be taken to prevent uphill and downhill rutting during skidding and hauling on the steeper slopes. Machine planting should be done on the contour on the steeper slopes. The coarse texture of these soils may restrict equipment use during dry periods. Modified equipment, such as tandem-axle, four-wheel drive, and wide-tired vehicles, may be needed. Seedling mortality may be significant because of the low available water capacity of these soils. Successful establishment of planted pine requires attention to proper planting depth and soil compaction. Plant when the soil is moist. Control of herbaceous weeds, either during site preparation or as a release during the first growing season, may also be needed. Some replanting may be necessary, especially following a particularly dry year. As slopes increase, the need for proper road design and construction becomes more important. Long, uninterrupted grades should be avoided, and water-control devices should be installed. Wing ditches should be used as often as possible, but released only onto stable outlets. Revegetation of potential problem areas should be considered.

Woodland Management Group 7. This group includes soil mapping units: HaA—Hainesville loamy fine sand, 0 to 2 percent slopes; VoA—Votaw fine sand, 0 to 1 percent slopes.

These sandy soils are on stream terraces and have a high potential for pine management. Common overstory trees include loblolly pine, longleaf pine, and shortleaf pine; post oak and southern red oak; white ash; winged elm; sweetgum; and hickory. The

50-year site index for loblolly pine averages 90 feet (approximately 60 feet on a 25-year curve). The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 330 board feet (Doyle Rule) or 90 cubic feet per acre per year. Management can substantially increase this yield. Because these soils are loose when dry, access and equipment operability is poor during dry periods when rutting is possible. They are, however, well suited to access and equipment operability during wet periods. These soils are moderately suitable for roads and log landings. Seedling mortality may be moderate to severe. Proper planting depth and compaction are important. Herbaceous weed control may be needed. Attention should be given to the possible leaching of fertilizers and of chemicals when herbicides are used for site preparation. Care should be taken in choosing appropriate chemicals and application methods to reduce the possibility of contaminating ground water.

Woodland Management Group 8. This group includes soil mapping units: AaB—Alazan very fine sandy loam, 0 to 4 percent slopes; SeD—Sawlit part of the Sawlit-Sawtown complex, 1 to 3 percent slopes; CiA—Choates loamy sand, 1 to 5 percent slopes; WnS—Sawlit part of the Woodville-Sawlit complex, 1 to 3 percent slopes.

These soils occur on uplands and stream terraces. They have a high potential for both pine and hardwood management. Common overstory trees include loblolly pine; water oak, white oak, and cherry bark oak; ash; black gum; hickory; and sweetgum. Shortleaf and longleaf pine as well as post and red oak may occur on drier sites. The 50-year site index for loblolly pine averages 95 feet (approximately 60 feet on a 25-year curve), but can range from 90 to 100 feet. For bottomland oaks, the site index averages 80 feet. The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 395 board feet (Doyle Rule) or 102 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability on these soils is poor during wet periods. It may be necessary to suspend harvesting and other operations during wet periods when rutting can be severe. Wetness and low strength also cause moderate problems on these soils for log landings and roads. These soils are well suited to site preparation operations when planned for the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation should include consideration of the slow drainage and high water table on these soils. Applications should not be made during wet periods.

Woodland Management Group 9. This group includes soil mapping units: CoB—Corrigan loam, 1 to 5 percent slopes; CoE—Corrigan loam, 5 to 15 percent slopes; UrB—Urland fine sandy loam, 1 to 5 percent slopes.

These soils are on uplands and have a moderate potential for woodland (pine) management. Common trees of the overstory include loblolly and shortleaf pine; post oak, southern red oak, water oak, and white oak; ash; sweetgum; elm; and hickory. Longleaf pine, when within its range, also occurs on some of these soils. The 50-year index for loblolly pine averages 85 feet (approximately 57 feet on a 25-year curve), and ranges from 75 to 90 feet, depending on slope and slope position. The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 280 board feet (Doyle Rule) or 80 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability is poor during wet periods. Wet weather limitations may be necessary to prevent rutting and excessive erosion. Low strength and stickiness make these soils only moderately suitable for roads and log landings. On steeper slopes the potential for erosion is greater. On these steeper slopes, site disturbance should be minimized and water control devices for roads, such as water bars, should be installed. Revegetation roads and log landings may also be necessary. Site preparation and tree planting operations are affected by the sticky nature of these soils when wet. Tree planting should be planned for the drier, early part of the planting season. Also, because clay occurs within ten inches of the surface, care must be taken to assure proper planting depth. Sub soiling or ripping on the flatter slopes, prior to planting, may be needed. On steep slopes, mechanical tree planting should be done on the

contour. The moderate level of runoff on these soils means precautions are needed when using herbicides for site preparation and release in order to prevent contamination of surface waters.

Woodland Management Group 10. This group includes soil mapping units: LcB—Laska fine sandy loam, 1 to 3 percent slopes; CkC—Laska part of the Colita-Laska complex, 0 to 3 percent slopes.

This soil is on uplands and has a moderate potential for woodland (pine) management. Common overstory trees include loblolly and shortleaf pine; post oak, white oak, southern red oak, and water oak; sweetgum; white ash; and elm. The 50-year site index for loblolly pine averages 80 feet (55 feet on a 25-year curve). The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 230 board feet (Doyle Rule) or 75 cubic feet per acre per year. Management can substantially increase this yield. This soil has few soil related problems. Access and equipment operability may be somewhat limited during wet periods when rutting can be a moderate concern. Short term restrictions may be necessary at these times. Low strength makes it moderately suitable for roads and road construction material.

Woodland Management Group 11. This group includes soil mapping units: MpA—Mollville part of the Mollville-Besner complex, 0 to 1 percent slopes.

This soil occurs on level to depressional stream terraces. Ponding of water is common during wet months. It has a moderate potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, willow oak, and cherry bark oak; green ash; blackgum; elm; and sweetgum. The 50-year site index for loblolly pine averages between 80 and 85 feet (approximately 55 to 57 feet on a 25-year curve), but can range from 75 to 90 feet depending on drainage. The 50-year site index for bottomland oaks ranges from 75 to 85 feet. The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 250 board feet (Doyle Rule) or 80 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability on this soil is poor during wet periods, when rutting can occur because of saturation of the soil. It may be necessary to suspend harvesting and other operations for long periods. Wetness also makes these soils poorly suitable for log landings and roads. Low strength makes it moderately suitable for road construction. Raising and crowning the road bed is necessary and care must be taken to avoid interrupting the natural drainage. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Poor drainage and high seasonal water tables in this soil must be considered when using herbicides in site preparation. Wetness may cause a moderate to high level of seedling mortality. Bedding may be needed.

Woodland Management Group 12. This group includes soil mapping units: BrC—Browndell-Kitterll Complex, 2 to 5 percent slopes; BrD—Browndell-Kitterll Complex, stony, 5 to 15 percent slopes; BrG—Browndell-Kitterll Complex, 15 to 35 percent slopes, very bouldery.

These gently sloping to steep, shallow soils are on uplands and have a low to moderate potential for woodland (pine) management. Common trees of the overstory include loblolly and shortleaf pine; post oak, southern red oak, and white oak; ash; elm; and hickory. When within its range, longleaf pine may also be present. The 50-year site index for loblolly pine averages between 70 and 75 feet (approximately 50 to 53 feet on a 25-year curve). The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 130 board feet (Doyle Rule) or 50 cubic feet per acre per year. Although management can increase this yield, trees growing on these soils tend to be of poor form. Access and equipment operability is moderate to poor depending on slope, stoniness, and depth of soil. Stoniness and slope make these soils poorly suitable for roads and log landings. On steeper slopes the potential for erosion on these soils is high. Site disturbance should be minimized and these soils should be avoided when selecting road locations. If roads are built on these soils, water control devices such as

water bars are needed. Revegetation of disturbed areas may also be necessary. Mechanical operations for site preparation and tree planting should be avoided. Because clay or bedrock occurs within inches of the surface, care must be taken during tree planting to assure proper planting depth, otherwise moderate to severe seedling mortality may occur. The high level of runoff on these soils means precautions should be taken when using herbicides for site preparation and release in order to prevent contamination of surface waters.

Woodland Management Group 13. This group includes soil mapping units: CkB—Colita fine sandy loam, 1 to 3 percent slopes; CkC—Colita part of the Colita-Laska complex, mounded, 0 to 3 percent slopes.

This soil occurs on depressional to gently sloping uplands. It has a low to moderate potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine, shortleaf pine, and when within its range, longleaf pine; water oak and southern red oak; green ash; elm; black gum; and sweetgum. The 50-year site index for loblolly pine averages between 70 and 75 feet (approximately 50 to 53 feet on a 25-year curve). The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 130 board feet (Doyle Rule) or 50 cubic feet per acre per year. Management can substantially increase this yield. This soil is moderately suitable for equipment operability during the winter month's dues to a high water table and its low strength. It may be necessary to suspend harvesting and other operations during wet periods, when rutting will occur. Wetness also makes this soil moderately suitable for log landings and roads. Low strength makes it moderately suitable for road construction material. Road construction may require raising and crowning of the surface. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Poor drainage and high seasonal water tables in this soil must be considered when using herbicides in site preparation. Applications should not be made during wet periods. Wetness may cause a moderate level of pine seedling mortality.

Woodland Management Group 14. This group includes soil mapping units: IbA—Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded; Lb—Laneville fine sandy loam, 0 to 1 percent slopes, frequently flooded.

These very deep loamy soils occur on flood plains and have a very high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, and cherrybark oak; green ash; American elm; sugarberry; and sweetgum. Shortleaf pine may occur on drier sites and willow oak may occur on wetter sites. The 50-year site index for loblolly pine ranges from 95 to 110 feet (approximately 62 to 75 feet on a 25-year curve). For bottom land oaks it averages 85 to 100 feet. The yield from an unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 460 board feet (Doyle Rule) or 115 cubic feet per acre per year. Although management can substantially increase this yield, it should also include attention to streamside management zone considerations to protect water quality. Access and equipment operability on these soils are poor during wet periods because of flooding and seasonal high water tables. Harvesting and other operations may need to be suspended during such periods. Flooding also makes these soils moderately to poorly suited to log landings and roads. Road construction should be limited. When these soils are wet, their low strength will lead to severe rutting problems and make them poorly suited to road construction. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation must also take into consideration the possibility for flooding in order to prevent the contamination of surface waters. Wetness may cause a moderate loss in pine seedling survival.

Woodland Management Group 15. This group includes soil mapping units: BuB—Burkeville clay, 3 to 5 percent slopes; BuD—Burkeville clay, 5 to 15 percent slopes;

WcB—Wiergate clay, 1 to 3 percent slopes; ReB—Redco clay, 1 to 3 percent slopes; ReD—Redco clay, 5 to 15 percent slopes.

These high shrink-swell soils are on uplands and although they are "blackland soils," pines have encroached upon them. They have a moderate potential for woodland (pine) management, but the high pH may make establishment difficult. Common trees of the overstory include loblolly and shortleaf pine; post oak, southern red water oak, and water oak; ash; elm; and hickory. Longleaf pine and honey locust may also occur. The 50-year site index for loblolly pine averages between 75 and 85 feet (approximately 55 feet on a 25-year curve). The yield from an unmanaged natural stand of loblolly pine, over a 50-year period, is approximately 230 board feet (Doyle Rule) or 75 cubic feet per acre per year. Although management can substantially increase this yield, trees on these soils tend to have poor form. Therefore a short rotation management scheme may be considered. Access and equipment operability is poor during wet periods. Wet weather limitations may be necessary to prevent rutting and excessive erosion. Low strength and stickiness makes these soils only moderately suitable for roads and log landings. Their clayey nature makes them poorly suitable for constructed road material. As slopes increase, the potential for erosion increases. On steeper slopes, site disturbance should be minimized and control devises on roads such as water bars will be necessary. Re-vegetating roads and log landings may also be necessary. Site preparation and tree planting operations will be severely affected by the sticky nature of these soils when they are wet. Site preparation should be planned for the drier part of the year. Proper soil moisture will be important when scheduling tree planting to assure correct soil compaction. Mechanical tree planting on steeper slopes should be done on the contour. Also, because these soils are clayey, care must be taken to assure proper planting depth. The very slow permeability of these soils means precautions will need to be made to prevent contamination of surface waters when using herbicides for site preparation and release. This slow permeability and high ph may also cause a moderate to high amount of mortality to planted seedlings.

Woodland Management Group 16. This group includes soil mapping units: NhB—Newco fine sandy loam, 1 to 5 percent slopes; NhD—Newco fine sandy loam, 5 to 15 percent slopes; WnB—Woodville very fine sandy loam, 1 to 3 percent slopes; WnD—Woodville fine sandy loam, 5 to 15 percent slopes; WnS—Woodville part of the Woodville-Sawlit complex, 1 to 3 percent slopes; StM—Bonwier part of Stringtown-Bonwier complex, 5 to 15 percent slopes.

These shrink-swell soils are on uplands and have a high potential for woodland (pine) management. Common trees of the overstory include loblolly and shortleaf pine, and when within its range, longleaf pine; post oak, southern red oak, water oak, and white oak; ash; sweetgum; elm; and hickory. The 50-year site index for loblolly pine averages between 85 and 90 feet (approximately 57 to 60 feet on a 25-year curve). The yield from an unmanaged, natural stand of loblolly pine over a 50-year period is approximately 280 to 330 board feet (Doyle Rule) or 75 to 90 cubic feet per acre per year. Although management can substantially increase this yield, trees on these soils tend to have poor form. Therefore a short rotation management scheme may be considered. Access and equipment operability is poor during wet periods when rutting can be severe. Wet weather limitations may be necessary to prevent excessive erosion, particularly on steeper slopes. Low strength and stickiness makes these soils only moderately suitable for roads and log landings. On steeper slopes the potential for erosion is greater. On these steeper slopes, site disturbance should be minimized and control devices for roads such as water bars are necessary. Revegetation of roads and log landings may also be necessary. Site preparation and tree planting operations will be affected by the sticky nature of these soils when wet. Site preparation should be planned for the drier part of the year. Tree planting should be planned for the drier early part of the planting season. Mechanical tree planting on steeper slopes should be done on the contour. Also, because clay occurs within ten inches of the surface, care must be taken to assure

proper planting depth. The slow permeability of these soils means precautions are needed when using herbicides for site preparation and release in order to prevent contamination of surface waters.

Woodland Management Group 17. This group includes soil mapping units: BiB—Belrose loamy very fine sand, 1 to 3 percent slopes; BcA—Belrose part of the Belrose-Caneyhead complex, 0 to 1 percent slopes; KeB—Kenefick very fine sandy loam, 1 to 3 percent slopes; KfA—Kenefick part of Kenefick-Caneyhead complex, 0 to 1 percent slopes; KgA—Niwana part of Kirbyville-Niwana complex, 0 to 1 percent slopes.

These very deep loamy soils are on terraces and nearly level and gently sloping coastal plain (some occur as mounds). They have a very high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly and occasionally shortleaf pine and longleaf pine; white oak, southern red oak, and water oak; sweetgum; white ash; and elm. Beech and sweetbay may also be found. The 50-year site index for loblolly pine averages 95 to 100 feet (70 feet on a 25-year curve), but ranges form 95 to 105 feet. The 50-year site index for longleaf pine averages 80 feet. The yield from an unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 460 board feet (Doyle Rule) or 115 cubic feet per acre per year. Management can substantially increase this yield. The only problem associated with these soils is the somewhat limited access and equipment operability during wet periods when rutting can be a moderate concern. Short-term restrictions may be necessary at these times. These soils are well suited to roads and log landings and should have little erosion problems when adequate water control devices such as wing ditches and water bars are installed on the steeper slopes. They are well suited to most mechanical site preparation and tree planting methods.

Woodland Management Group 18. This group includes soil mapping units: KiB—Kirbyville fine sandy loam, 0 to 2 percent slopes; KgA—Kirbyville part of the Kirbyville-Niwana complex, 0 to 1 percent slopes; KnB—Kountze very fine sandy loam, 0 to 2 percent slopes; SsA—Spurger part of Spurger-Caneyhead complex, 0 to 1 percent slopes.

These very deep loamy soils occur on coastal plain and terraces and have very high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, white oak, willow oak, and cherrybark oak; green ash; blackgum; American elm and winged elm; and sweetgum. Magnolia and sweetbay may also be found. Shortleaf pine, longleaf pine, and red oak may be present on drier sites. The 50-year site index for loblolly pine ranges from 95 to 105 feet (approximately 62 to 72 feet on a 25-year curve). For bottomland oaks it averages 90 to 95 feet. The yield from an unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 460 board feet (Doyle Rule) or 115 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability on these soils is fair during wet periods. Harvesting and other operations may need to be suspended during such periods. Wetness will also cause some slight problems on these soils for log landings and roads. Raising and crowning the road surface may be necessary. Some problems with rutting may occur during wet periods. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. The use of herbicides for site preparation should take into consideration the slow permeability on these soils. Applications should not be made during wet periods.

Woodland Management Group 19. This group includes soil mapping units: EvA—Evadale silt loam, 0 to 1 percent slopes.

This very deep loamy soil occurs on nearly level and depressional coastal plain. They have a very high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, laurel oak, and willow oak; green ash; blackgum; and sweetgum. The 50-year site index for loblolly pine averages 100 feet (approximately 70 feet on a 25-year curve) and ranges from 90 to 110 feet depending on drainage. The site index for bottomland hardwoods averages 90 feet. The yield from an

unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 460 board feet (Doyle Rule) or 115 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability on this soil is poor during wet periods because of saturation of the soil. Harvesting and other operations may need to be suspended during such periods. Wetness also makes this soils poorly suited to log landings and roads. When this soil is wet, the low strength will lead to severe rutting problems and is poorly suited to road construction. Raising and crowning the roadbed will be necessary and care must be taken to avoid interrupting the natural drainage. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation must also take into consideration the poor drainage on this soil. Applications should not be made during wet periods. Wetness may cause a moderate loss in pine seedling survival. Bedding may be necessary.

Woodland Management Group 20. This group includes soil mapping units: OiA—Dallardsville part of Olive-Dallardsville complex, 0 to 1 percent slopes; OtB—Otanya very fine sandy loam, 1 to 3 percent slopes; OtC—Otanya fine sandy loam, 3 to 5 percent slopes; NoA—Dallardsville part of Nona-Dallardsville complex, 0 to 1 percent slopes; SiC—Silsbee fine sandy loam, 3 to 5 percent slopes; SiD—Silsbee fine sandy loam, 5 to 12 percent slopes; SnA—Dallardsville part of Sorter-Dallardsville complex, 0 to 1 percent slopes; WbA—Dallardsville part of Waller-Dallardsville complex, 0 to 1 percent slopes.

These very deep loamy soils are on very gently sloping to steeply sloping coastal plain and have a high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine and occasionally shortleaf and longleaf pine; white oak, southern red oak, and water oak; sweetgum; white ash; and winged elm. The 50-year site index for loblolly pine averages 90 feet (60 feet on a 25-year curve), but ranges from 85 to 100 feet. The 50-year site index for longleaf pine averages 80 feet. The yield from an unmanaged, natural stand of loblolly pine, over 50-year period, is approximately 330 board feet (Doyle Rule) or 90 cubic feet per acre per year. Management can substantially increase this yield. Equipment operability and access on these soils may be somewhat limited during wet periods when rutting will be a concern. Short-term restrictions may be necessary at these times. The flatter slopes of soils are suited to most mechanical site preparation and tree planting methods. Steeper slopes will make site preparation and tree planting more difficult.

Woodland Management Group 21. This group includes soil mapping units: OiA—Olive part of Olive-Dallardsville complex, 0 to 1 percent slopes; WaD—Waller part of Waller-Dallardsville complex, 0 to 1 percent slopes; LhA—Lelavale silt loam, 0 to 1 percent slopes.

These very deep clayey and loamy soils occur on level to depressional coastal plain. They have a high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, willow oak, and cherrybark oak; green ash; winged elm; blackgum; and sweetgum. Magnolia, sweetbay, and swamp chestnut may also be present to a lesser extent. The 50-year site index for loblolly pine averages 90 feet (approximately 60 feet on a 25-year curve) but ranges from 85 to 95 feet. Oaks on flood plains have a site index that ranges from 75 to 85 feet. The yield from an unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 330 board feet (Doyle Rule) or 90 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability on these soils is poor during wet periods because of saturation of the soil. Harvesting and other operations may need to be suspended during such periods. Wetness also makes these soils poorly suited to log landings and roads. Wetness and low strength will lead to severe rutting problems and make them moderately suited to road construction. Raising and crowning the roadbed will be necessary and care must be taken to avoid interrupting the natural drainage. Wetness will cause problems for site preparation and planting operations. Site preparation operations should be limited to the dry months and planting should be planned for the

drier part of the planting season. Use of herbicides for site preparation must also take into consideration the poor drainage on these soils. Applications should not be made during wet periods. Wetness may cause a moderate to high loss in pine seedling survival. Bedding may be needed.

Woodland Management Group 22. This group includes soil mapping units: TyA—Babco part of Tyden-Babco complex, 0 to 1 percent slopes.

This nearly level soil is on mounds on terrace risers of river valleys, and has a high potential for woodland management, both pine and hardwood. Common overstory trees include loblolly and longleaf pine; water and white oak; green ash; and sweetgum. Magnolia and sweetbay may also be found. The 50-year site index for loblolly pine averages 80 feet (approximately 55 feet on a 25-year curve) but ranges from 70 to 85 feet. The yield from an unmanaged, natural stand of loblolly pine, over 50-year period, is approximately 330 board feet (Doyle Rule) or 90 cubic feet per acre per year. Management can substantially increase this yield. The only problem associated with these soils is the somewhat limited access and equipment operability during wet periods when rutting can be a moderate concern. Short-term restrictions may be necessary at these times. They are well suited to most mechanical site preparation and tree planting methods.

Woodland Management Group 23. This group includes soil mapping units: JhA—Jayhawker silt loam, 0 to 1 percent slopes; SnA—Sorter part of Sorter-Dallardsville complex, 0 to 1 percent slopes; TyA—Tyden part of Tyden-Babco complex, 0 to 1 percent slopes.

These very deep loamy soils occur as level to depressional coastal plain. Ponding of water is common during wet months. They have a moderate potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; willow oak; green ash; blackgum, red maple, sweetbay, and sweetgum. Magnolia and cypress may also be found. The 50-year site index for loblolly pine averages between 80 and 85 feet (approximately 55 to 57 feet on a 25-year curve), but can range from 75 to 95 feet depending on drainage. The 50-year site index for bottomland oaks ranges from 70 to 80 feet. The yield from an unmanaged, natural stand of loblolly pine, over a 50-year period, is approximately 250 board feet (Doyle Rule) or 80 cubic feet per acre per year. Management can substantially increase this yield. Ponding and wetness hinders management on these soils. Access and equipment operability on these soils is poor during wet periods, when rutting will occur because of saturation of the soil. Harvesting and other operations may need to be suspended during such periods. Wetness also makes these soils poorly suited to log landings and roads. Low strength makes them moderately to poorly suited to road construction. Raising and crowning the roadbed will be necessary and care must be taken to avoid interrupting the natural drainage. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation must also take into consideration the poor drainage and high seasonal water tables on these soils. Wetness may cause a moderate to high loss in seedling survival. Bedding may be needed. Slash pine may be suited to these soils.

Woodland Management Group 24. This group includes soil mapping units: NoA—Nona part of Nona-Dallardsville complex, 0 to 1 percent slopes; PkA—Plank silt loam, 0 to 1 percent slopes.

These very deep loamy soils occur as level to depressional coastal plain. They have a moderate potential for woodland management, both pine and hardwood. Common overstory trees include loblolly pine; water oak, laurel oak, and willow oak; green ash; blackgum; red maple; sweetbay; and sweetgum. Longleaf pine may also be found on the Nona soils. Cherrybark oak may be found on drier sites. The 50-year site index for loblolly pine averages between 75 and 80 feet (approximately 55 feet on a 25-year curve) but ranges from 70 to 85 feet. The site index for flood plain oaks ranges from 65 to 75 feet. The yield from an unmanaged, natural strand of loblolly pine, over a 50-year period,

is approximately 230 board feet (Doyle Rule) or 75 cubic feet per acre per year. Management can substantially increase this yield. Access and equipment operability on these soils is poor during wet periods because of saturation of the soil. Harvesting and other operations may need to be suspended during such periods, when rutting will occur. Wetness also makes these soils poorly suited to log landings and roads. Low strength makes them moderately suited to road construction material. Road layout should avoid these soils whenever possible. Site preparation operations should be limited to the dry months and planting should be planned for the drier part of the planting season. Use of herbicides for site preparation must also take into consideration the poor drainage on these soils. Applications should not be made during wet periods. Wetness may cause a moderate loss in pine seedling survival. Slash pine may be suited to these soils.

Woodland Management Group 25. This group includes soil mapping units: EtA—Angelina part of Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded; BcA—Caneyhead part of Belrose-Caneyhead complex, 0 to 1 percent slopes; KfA—Caneyhead part of Kenefick-Caneyhead complex, 0 to 1 percent slopes; SsA—Caneyhead part of Spurger-Caneyhead complex, 0 to 1 percent slopes.

These very deep loamy soils are on flood plains or occur on depressional areas along poorly defined drainageways on terraces. They have a low potential for hardwood management. Common overstory trees include scattered green ash; tupelo; red maple; and overcup oak. The 50-year site indexes for overcup oak averages 65 to 70 feet. Although management can substantially improve yields, management opportunities will be severely restricted due flooding and to the presence of a year-round seasonal high water table. Wetness and flooding makes these soils poorly suited to roads and log landings. Few high value species are suited to these soils. Seedling mortality will be severe.

Woodland Management Group 26. This group includes soil mapping units: CyA—Cypress mucky clay, 0 to 1 percent slopes, frequently flooded (fig. 12).

These clayey and loamy soils occur as depressional areas on terraces and coastal plain, and are ponded for much of the year. Under normal conditions, this soil does not grow commercial stands of timber that are feasible to manage. Common overstory trees include red maple, tupelo, cypress, and, occasionally, willow oak. The extreme moisture conditions make growth slow and erratic and thus undependable. Access and operability are poor and road construction should be avoided whenever possible.

Woodland Management Group 27. This group includes soil mapping units: TuB—Turkey sand, 1 to 3 percent slopes.

These very deep sandy soils are on stream terraces and have a moderate potential for pine management. Common overstory trees include loblolly pine, shortleaf pine, and longleaf pine; southern red oak, post oak, and white oak; sweetgum; and hickory. Beech and magnolia may also be found. The 50-year site index for loblolly pine averages 85 feet (57 feet on a 25-year curve) but ranges from 80 feet to 95 feet, depending on slope position. The yield from a natural, unmanaged stand of loblolly pine, over a 50-year period, is approximately 280 board feet (Doyle Rule) or 80 cubic feet per acre per year. Management can substantially increase this yield. Because these soils are loose when dry, access and equipment operability is poor during such periods when rutting is possible. They are poorly suited to roads and log landings. Seedling mortality may be very high. Proper planting depth and compaction will be important. Herbaceous weed control may be needed. Attention should be given to the possible leaching of fertilizers and of chemicals when herbicides are used for site preparation. Choose appropriate chemicals and application methods to prevent the possible contamination of ground water.

Figure 12.—A view of an area of Cypress mucky clay, 0 to 1 percent slopes, frequently flooded. The Cypress soils are in Woodland Management Group 26.

Forest Productivity

In table 7, the *potential productivity* of merchantable or common trees on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and co-dominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In table 8, table 9, table 10, table 11, and table 12, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately well suited* indicates that

the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as low, *moderate*, and high. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities; *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suitable for use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, moderate indicates that rutting is likely, and *sever*e indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of slight indicates that little or no erosion is likely; moderate indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected,

that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface*) are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface*) are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep*) are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

Tyler County, with its location, climate, topography, highways, and natural resources, has a high potential for numerous outdoor recreation activities. The county is about one and one-half hour to Houston-Beaumont-Port Arthur area and less than an hour from the Texas-Louisiana state line which provides close proximity to population centers for activities requiring large numbers of people.

The county has many areas of scenic (fig. 13), geologic, and historic interest. These areas are used for camping, hiking, hunting fishing, sightseeing, picnicking, and boating. Public areas available for recreation include the Martin Die’s Jr State Park, Big Thicket National Preserve, State Scientific Wildlife Area, B.A. Steinhagen Lake, Watson Pinelands Preserve and Studio and the Alabama-Coushatta Indian Reservation.

Use of recreation facilities in the survey area and surrounding counties has greatly increased in the past several years. Many soils are moderately suited to development of recreation facilities.

Figure 13.—Dam B on the Neches River. The dam is used to control flooding and provide recreational activities. Below the dam is a park area.

The soils of the survey area are rated in table 13 and table 14 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In

planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in table 13 and table 14 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a seasonal high water table, ponding, flooding, and texture of the surface layer.

Golf course fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The

properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife

Tyler County is a rural environment dominated by stands of pines and mixed hardwoods on uplands and stands of hardwoods adjacent to rivers and streams on bottom lands.

Habitat for many species of wildlife is provided by diverse mixture of trees, shrubs, and herbaceous plants. Interspersed within the woodlands are openings that have been cleared and established to pastureland or planted to crops.

The major game species are white-tail deer, fox, gray squirrels, turkey, bobwhite quail, and morning dove. Waterfowl are common on ponds, streams, and flooded bottom lands during the fall and winter. Numerous non-game birds and animals are associated with various habitat types. The edge effect provided by timber harvest is valuable to this non-game wildlife as well as to quail and rabbit.

White-tail deer populations have increased in Tyler County during the past few years. This is because of increased landowner interest in habitat management and protection. Leasing by hunting clubs is increasing. This provides an economic incentive for management. The lack of reliable year round food supply limits the number of deer that can be supported by many tracts of land, particularly tracts where pine production is the dominant land use.

Squirrel populations are high and are associated primarily with hardwood trees along rivers and streams. Population fluctuates according to food supplies. Destruction of hardwood trees is the greatest threat to squirrels.

The eastern turkey has been reestablished in East Texas. Its numbers are increasing where the turkey is protected and where its habitat needs are met. A hunting season for turkey has been established portions of Tyler County.

Timber management practices that include wildlife considerations offer best opportunities for improving wildlife habitat. Increased application of prescribed burning would benefit deer and other species.

Upland soils are well adapted to a variety of plants useful to wildlife. Corn, oats, peas, and other food and forage plants can be planted and raised successfully. Bottom land soils are generally fine textured and allow the construction of dikes for green tree reservoirs or other wetland development.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Wildlife Habitat

In table 15, table 16, table 17, and table 18, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established,

improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, grain sorghum, wheat, oats, and rye.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are lovegrass, bermudagrass, kleingrass, yellow bluestems, Eastern gamagrass, and switchgrass. Examples of legumes are clover, cowpeas, and vetch.

Upland wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are big bluestem, little bluestem, indiangrass, goldenrod, beggarweed, and grama.

Upland shrubs and vines indicate the limitation of the soils as a growing medium for diverse upland shrub and vine community. This community is adapted to soils that are drier than those common in the moist riparian and wetland zones, but that are not so dry as those in upland desert areas. The soil properties and features that affect the ability of these species to thrive include soil texture, content of organic matter, available water capacity, depth to bedrock or a cemented pan, the presence of excess salts in the soil, soil moisture and temperature regimes, depth to a high water table, and rock fragments on the soil surface. Examples of upland shrubs and vines are yaupon, farkleberry, hawthorne, greenbriar, poison ivy, jasmine, Virginia creeper, trumpet creeper, and grape.

Upland deciduous trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are post oak, red oak, white oak, sweetgum, blackgum, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are oak, sweetgum, hawthorne, dogwood, hickory, and blackberry.

U*pland coniferous trees* indicate the limitation of the soils as a growing medium for a diverse upland coniferous tree community that meets specific local habitat requirements for targeted and nontargeted wildlife species. Typically, coniferous trees can subsist under harsher soil conditions than geographically related hardwoods. The soil properties and features that affect the ability of upland coniferous trees to thrive include available water capacity, depth to a high water table, depth to bedrock or a cemented pan, and soil moisture and temperature regimes. Examples of coniferous plants are loblolly pine, long leaf pine, short leaf pine, cedar, and juniper.

Riparian herbaceous plants indicate the limitation of the soils as a growing medium for herbaceous plants that are adapted to soil conditions that are wetter than those common in the drier upland areas. The soils suitable for this habitat generally are on

flood plains, in depressions, on bottomland, in drainageways adjacent to streams, or in any other area where the soil is either saturated for some period during the year or is subject to periodic overflow from ponding or flooding. The soil properties and features that affect the ability of riparian herbaceous plants to persist include soil texture, content of organic matter, depth to a high water table, the frequency and duration of ponding and flooding, the presence of excess salts in the soil, rock fragments, and the soil temperature regime. Examples of riparian herbaceous plants are Virginia wildrye, Eastern gamagrass, switchgrass, white grass, broadleaf woodoats, switch cane, ice plant, and mist flower.

Riparian shrubs, vines, and trees indicate the limitation of the soils as a growing medium for shrubs, vines, and trees that are adapted to soil conditions that are wetter than those common in the drier upland areas. The soils suitable for this habitat generally are on flood plains, in depressions, on bottomland, in drainageways adjacent to streams, in areas of springs and seeps, or in any other area where the soil is either saturated for some period during the year or is subject to periodic overflow from ponding or flooding. The soil properties and features that affect the ability of riparian shrubs, vines, and trees to persist include available water capacity, depth to a high water table, the frequency and duration of ponding and flooding, the presence of excess salts in the soil, and the soil temperature regime. Examples of riparian shrubs, vines, and trees are cottonwood, willow, box elder, green ash, hackberry, American elm, bald cypress, hawthorne, rattan, poison ivy, greenbriar and grape.

Freshwater wetland plants indicate the limitation of the soils as a growing medium for plants that are adapted to wet soil conditions. The soils suitable for this habitat generally are in marshes, in depressions, on bottomland, in backwater areas on flood plains, in drainageways adjacent to streams, in areas of springs and seeps, or in any other area where the soil is not directly affected by moving floodwater but may be ponded during some part of the year. The soil properties and features that affect the ability of freshwater wetland plants to persist include soil texture, content of organic matter, depth to a high water table, the frequency and duration of ponding, the presence of excess salts in the soil, and soil reaction (pH). Examples of freshwater wetland plants are smartweed, wild millet, cattails, cut grass, giant cane, maiden cane, lizard tail, rattle box, sesbania, planer tree, buttonbush, water hickory, rushes, sedges, and reeds.

Hydric Soils

In this section, hydric soils are defined and described.

The three essential characteristics of wetlands are hydrophytic vegetation (fig.14), hydric soils, and wetland hydrology (3,7,12,13). Criteria for each of the characteristics must be met for areas to be identified as wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (4). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (5). The criteria are used to identify a phase of a soil series that normally is also a hydric soil. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (11) and "Keys to Soil Taxonomy" (10) and in the "Soil Survey Manual" (8).

Figure 14.—Pitcher plant growing in an Olive depression, in an area of Olive-Dallardsville complex, 0 to 1 percent slopes. Pitcher plants prefer growing on wet acidic soils.

If soils are wet enough for a long enough period to be considered hydric, they generally exhibit certain properties that can be observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (6).

For information regarding hydric soils, refer to the USDA Natural Resources Conservation Service Soil Data Mart at http://soildatamart.nrcs.usda.gov.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section.

Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 19 and table 20 shows the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility

(shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches—the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 21 and table 22 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and

moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in down slope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of

ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 23 and table 24 provides information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 23, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a

source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair*, or *poor* as potential sources of sand and gravel. A rating of good or fair means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair*, or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Water Management

Table 25 provides information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include physical and chemical properties, and clay mineralogy.

Engineering Index Properties

Table 26 provides the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters across. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (2) and the system adopted by the American Association of State Highway and Transportation Officials (1).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches across and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches across is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection. If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches across and 3 to 10 inches across are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches across based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Soil Properties

Table 27 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle-size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle-sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle-size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar or 1/10 bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability (*K-sat*)* refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K-sat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3 bar or 1/10 bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table16, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop resibecause of the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 27 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 28 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter (mmhos/cm) or decisiemens per meter (dS/m) at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can

differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Soil Features

Table 29 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restricts roots or otherwise provides an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Water Features

Table 30 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 30 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 30 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Physical, Chemical, and Clay Mineralogy Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in table 31, the results of chemical analysis in table 32, and the results of clay mineralogy analysis in table 33, and the results of sand mineralogy in table 34. The data are for soils sampled at carefully selected sites. Unless otherwise indicated, the pedons are typical of the series. They are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by National Soil Survey Laboratory, Lincoln, Nebraska, and the Soil Characterization Laboratory, Texas A&M University at College Station, Texas.

Depth to the upper and lower boundaries of each layer is indicated.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters across. Measurements reported as percent or quantity of unit weight was calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods (15).

Sand—(0.05- to 2.0-millimeter fraction) weight percentages of material less than 2 millimeters (3A1).
Silt—(0.002- to 0.05-millimeter fraction) pipette extraction, weight percentages of all material less than 2 millimeters (3A1).
Clay—(fraction less than 0.002 millimeter) pipette extraction, weight percentages of material less than 2 millimeters (3A1).
Coefficient of linear extensibility—change in clod dimension based on whole soil (3D4).
Bulk density of less than 2-millimeter material, saran-coated clods field moist (3B1a), 1/3 bar (3B1b), ovendry (3B1c).
Water retained—pressure extraction, percentage of ovendry weight of less than 2-millimeter material; 1/3 bar (3C1), 15 bars (3C2).
Organic carbon—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c, obsolete).
Reaction (pH)—1:1 water dilution (4C1a2a1).
Extractable cations—ammonium acetate pH 7.0, ICP; calcium (6N2e, 6N2f), magnesium (6O2d, 6O2e), sodium (6P2b, 6P2c), potassium (6Q2b, 6Q2c).
Cation exchange capacity—sum of cations (4B4b1).
Base saturation—ammonium acetate, pH 7.0 (4B4c1).
Electrical conductivity—saturation extract (4F2b1).
Sodium adsorption ratio (SAR)—(4F3b).
*Exchangeable sodium percentage (*ESP*)*—ammonium acetate, pH 8.2 (5F1).
X-Ray diffraction, clay mineralogy—(7A1).
Optical grain count, sand fraction—(7B1a).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (9,10). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 35 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil—forming processes and the degree of soil formation. Each order is identified by a word ending in sol. An example is Vertisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ustert (Ust, meaning burnt, plus ert, from Vertisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplusterts (Hapl, meaning minimal horizonation, plus usterts, the suborder of the Vertisols that has an ustic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Typic identifies the subgroup that typifies the great group. An example is Typic Haplusterts.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, smectitic, thermic Typic Haplusterts.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil that is typical of the series in the survey area is described. Some of the typifying pedons described below are not

exclusively located within the boundaries of Tyler County, but are typical pedons for the series in the MLRA survey area, of which Tyler County is located. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (8). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (11) and in "Keys to Soil Taxonomy" (10). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Alazan Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberland
Landscape: Inland dissected coastal plain
Landform: Tread on stream terrace
Parent material: Loamy alluvium
Geology: Quaternary terraces
Drainage class: Moderately well drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 4 percent

Associated Soils

- Mollville soils are poorly drained.
- Sawlit soils have a clayey 2Bt horizon at a depth of 26 to 40 inches.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Aquic Glossudalfs

Typical Pedon

Alazan very fine sandy loam in an area of Alazan very fine sandy loam, 0 to 4 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 5.5 miles northwest on U.S. 287, 0.6 mile north on woods road to pipeline and curve in road, 0.2 mile north on adjoining woods road, and 400 feet east in plantation. Woodville, Texas USGS Quadrangle; Latitude—30 degrees, 50 minutes, 19.70 seconds N., and Longitude—94 degrees, 29 minutes, 25.10 seconds W.

A—0 to 4 inches; brown (10YR 5/3), very fine sandy loam; weak fine granular structure; very friable, slightly hard, nonsticky, nonplastic; very strongly acid; clear smooth boundary.

E1—4 to 12 inches; pale brown (10YR 6/3), very fine sandy loam; weak fine granular structure; very friable, slightly hard, nonsticky, nonplastic; very strongly acid; clear smooth boundary.

E2—12 to 18 inches; pale brown (10YR 6/3), very fine sandy loam; weak fine granular structure; very friable, slightly hard, nonsticky, nonplastic; 3 percent fine distinct yellowish brown (10YR 5/6) masses of oxidized iron with diffuse boundaries; very strongly acid; gradual wavy boundary.

Bt/E1—18 to 26 inches; 75 percent yellowish brown (10YR 5/6), sandy clay loam and 10 percent pale brown (10YR 6/3) fine sandy loam; weak fine subangular blocky structure; firm, hard, moderately sticky, moderately plastic; 15 percent medium distinct light brownish gray (10YR 6/2) iron depletions; very strongly acid; gradual wavy boundary.

Bt/E2—26 to 41 inches; 75 percent light yellowish brown (10YR 6/4), sandy clay loam and 20 percent pale brown (10YR 6/3) fine sandy loam; weak medium

subangular blocky structure; firm, hard, moderately sticky, moderately plastic; 5 percent medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Bt/E3—41 to 50 inches; 60 percent light brownish gray (10YR 6/2), sandy clay loam and 30 percent pale brown (10YR 6/3) fine sandy loam; moderate medium subangular blocky structure; firm, hard, moderately sticky, moderately plastic; 5 percent medium prominent red (2.5YR 4/8) and 5 percent medium distinct yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

Bt/E4—50 to 68 inches; 50 percent light brownish gray (10YR 6/2), sandy clay loam and 10 percent pale brown (10YR 6/3) fine sandy loam; moderate medium subangular blocky structure; very firm, very hard, very sticky, very plastic; 20 percent medium distinct yellowish brown (10YR 5/8) and 20 percent medium prominent red (2.5YR 4/8) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Bt/E5—68 to 80 inches; 30 percent yellowish brown (10YR 5/8) and 25 percent red (2.5YR 4/8) sandy clay loam and 25 percent light brownish gray (10YR 6/2) and 20 percent pale brown (10YR 6/3) fine sandy loam moderate medium subangular blocky structure; very firm, very hard, very sticky, very plastic; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The weighted average clay content of the particle-size control section ranges from 18 to 35 percent with silt content of 25 to 45 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Texture is very fine sandy loam. Reaction ranges from very strongly acid to moderately acid.

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 2 to 4. Redoximorphic features in shades of brown, gray, or red range from none to common. Texture is very fine sandy. Reaction is very strongly acid or strongly acid.

The Bt/E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 8 in the Bt portion and hue of 10YR, value of 6, and chroma of 2 or 3 in the E portion. Redoximorphic features in shades of red, brown, yellow, or gray range from few to many. Texture is loam or sandy clay loam in the Bt part, and sandy loam, fine sandy loam, or loam in the E part. The upper part of the Bt/E horizon is very strongly acid or strongly acid, and the lower part ranges from strongly acid to slightly acid. The E part, or albic materials make up 5 to 50 percent of the horizon, however, the glossic horizon (with more than 15 percent albic material) is more than 20 inches thick. In most pedons, 5 to 20 percent of the matrix is brittle.

The Btg/E horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2. Redoximorphic features in shades of red, brown, yellow, or gray range from common to many. Texture is loam, sandy clay loam, clay loam in the Bt part, and sandy loam, fine sandy loam, or loam in the E part. Reaction ranges from strongly acid to slightly acid. The E part, or albic materials make up 5 to 50 percent of the horizon.

Angelina Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: coastal plain
Landform: Flood plain
Parent material: Loamy alluvium of Holocene age
Geology: Holocene alluvium

Drainage class: Very poorly drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Iulus soils are in a coarse-loamy family.
- Manco soils have less than 60 percent chroma of 2.

Taxonomic Classification

Fine-loamy, siliceous, active, acid, thermic Typic Fluvaquents

Typical Pedon

Angelina fine sandy loam in an area of Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded; from the intersection of Farm Road 92 and Farm Road 1013 in Spurger, Texas, 4.3 miles east on Farm Road 1013, 2.6 miles south on Forest Lake Road, 1.5 miles southeast on forest road, 1.1 miles south and west on forest road, and 200 feet west of road in swamp. Spurger, Texas USGS Quadrangle; Latitude—30 degrees, 37 minutes, 20.00 seconds N., and Longitude—94 degrees, 5 minutes, 46.30 seconds W.

Ag—0 to 4 inches; grayish brown (10YR 5/2), fine sandy loam; weak medium and coarse prismatic structure; firm, hard, moderately sticky, moderately plastic; many fine to coarse roots; common fine and medium interstitial and tubular pores; 10 percent medium distinct yellowish brown (10YR 5/8) and dark yellowish brown (10YR 4/4) masses of oxidized iron; very strongly acid; clear smooth boundary.

Cg1—4 to 10 inches; light brownish gray (2.5Y 6/2), stratified loam; weak coarse prismatic structure; firm, hard, moderately sticky, moderately plastic; many fine and medium roots and common coarse roots; common fine and medium interstitial and tubular pores; 10 percent medium yellowish brown (10YR 5/8) masses of oxidized iron; very strongly acid; clear smooth boundary.

Cg2—10 to 21 inches; light brownish gray (2.5Y 6/2), stratified sandy clay loam; weak medium and coarse prismatic structure; very firm, very hard, moderately sticky, moderately plastic; many fine and medium roots; common fine interstitial and tubular pores; 15 percent medium strong brown (7.5YR 5/6) and 10 percent medium yellowish brown (10YR 5/8) masses of oxidized iron; 5 percent fine greenish gray (5BG 6/1) iron depletions; 10 percent strata of light gray (2.5Y 7/2) fine sandy loam 1/2 to 1 inch thick; very strongly acid; gradual smooth boundary.

Cg3—21 to 30 inches; light gray (2.5Y 7/2), stratified sandy clay loam; weak coarse prismatic structure; very firm, very hard, moderately sticky, moderately plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 10 percent medium strong brown (7.5YR 5/8) and yellowish brown (10YR 5/8) masses of oxidized iron; 5 percent thin strata of light gray (2.5Y 7/2) fine sandy loam 1/2 to 1 inch thick; very strongly acid; gradual smooth boundary.

Cg4—30 to 46 inches; light gray (2.5Y 7/2), stratified clay loam; weak coarse prismatic structure; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 10 percent medium strong brown (7.5YR 5/8) and yellowish brown (10YR 5/8) masses of oxidized iron; 10 percent medium greenish gray (5BG 6/1) iron depletions; 2 percent thin strata of light gray (2.5Y 7/2) fine sandy loam 1/2 to 1 inch thick; very strongly acid; gradual smooth boundary.

Cg5—46 to 63 inches; light gray (2.5Y 7/2), stratified clay loam; weak coarse prismatic structure; extremely firm, extremely hard, very sticky, very plastic; common very fine roots; common very fine and fine interstitial and tubular pores; 30 percent coarse yellowish brown (10YR 5/8) and 10 percent medium strong brown (7.5YR 5/8) masses of oxidized iron; extremely acid; gradual smooth boundary.

Cg6—63 to 80 inches; light gray (2.5Y 7/2), stratified clay loam; weak coarse prismatic structure; extremely firm, extremely hard, very sticky, very plastic; common very fine roots; common very fine interstitial and tubular pores; 10 percent fine and medium yellowish brown (10YR 5/8) masses of oxidized iron; extremely acid.

Range in Characteristics

The 10- to 40-inch control section has clay content ranging from 24 to 35 percent and has more than 20 percent silt. In some pedons, pockets, lenses, or thin strata of more sandy material are within 50 inches of the soil surface. Krotovinas are common throughout the solum. The soil is strongly acid or very strongly acid throughout.

The Ag horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is fine sandy loam.

The Cg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2; or it is neutral (N) with value of 5 to 7. Redoximorphic features are in shades of red, brown, or yellow. Texture is loam, sandy clay loam, or clay loam.

Babco Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: River valley on coastal plain
Landform: Ridge or mound on terrace
Parent material: Sandy alluvium of late Pleistocene age
Geology: Deweyville Formation
Drainage class: Moderately well drained
Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Belrose soils do not have spodic horizons.
- Tyden soils are poorly drained and in flats.

Taxonomic Classification

Coarse-loamy, siliceous, semiactive, thermic Oxyaquic Alorthods

Typical Pedon

Babco loamy fine sand (fig. 15) in an area of Tyden-Babco complex, 0 to 1 percent slopes; located in Hardin County, Texas, from the intersection of U.S. Highway 69 and Farm Road 326 in Kountze, 7.8 miles north on U.S. Highway 69 to the intersection with Farm Road 420, 3.8 miles east on Farm Road 420 to the intersection with county road, 1.3 miles north and east on county road to forest road, 0.6 mile north and east on forest road to pipeline, and 30 feet north of pipeline on mound. Kountze North, Texas USGS Quadrangle; Latitude—30 degrees, 28 minutes, 45.70 seconds N., and Longitude—94 degrees, 18 minutes, 48.10 seconds W.

Figure 15.—Profile of Babco loamy fine sand in an area of Tyden-Babco complex, 0 to 1 percent slopes.

A—0 to 8 inches; very dark gray (10YR 3/1), loamy fine sand; weak fine subangular blocky structure; friable, slightly hard; many very fine and fine roots throughout and many medium roots throughout; many fine and medium tubular pores; 2 inches of slightly decomposed leaf litter on surfaces; 30 percent white (10YR 8/1) sand grains; extremely acid; clear smooth boundary.

E—8 to 12 inches; light brownish gray (10YR 6/2), loamy fine sand; weak medium subangular blocky structure; friable, slightly hard; common very fine and fine roots throughout; common fine and medium tubular pores; 2 percent discontinuous distinct very dark gray (10YR 3/1) organic stains on faces of peds; extremely acid; abrupt wavy boundary.

Bhs—12 to 16 inches; dark brown (7.5YR 3/2), fine sandy loam; weak medium subangular blocky structure; firm, hard; common very fine roots between peds; common very fine and fine discontinuous tubular pores; 10 percent weakly cemented dark brown (7.5YR 3/2), dark grayish brown (10YR 4/2), black (7.5YR 2/1), very dark grayish brown (10YR 3/2) and brown (7.5YR 5/3) nodules; 10 percent spots of light brown (7.5YR 6/4) fine sandy loam in the upper part; extremely acid; clear wavy boundary.

Bs—16 to 22 inches; brown (7.5YR 4/4), fine sandy loam; weak medium subangular blocky structure; friable, slightly hard; common very fine roots between peds; common very fine discontinuous tubular pores; 2 percent continuous prominent black (7.5YR 2/1) iron stains on faces of peds and 3 percent continuous prominent black (7.5YR 2/1) organic stains on faces of peds; 8 percent fine prominent brownish yellow (10YR 6/8) masses of oxidized iron on faces of peds with clear boundaries; 5 percent fine and medium distinct light gray (10YR 7/2) iron depletions throughout with diffuse boundaries; 4 percent fine and medium distinct irregular dark yellowish brown (10YR 4/4) masses of oxidized iron lining pores with sharp boundaries; 15 percent moderately cemented strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), yellowish brown (10YR 5/8), brown (7.YR 5/3) and yellowish red (5YR 5/6) nodules; very strongly acid; clear wavy boundary.

E'—22 to 43 inches; very pale brown (10YR 7/3), fine sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; firm, hard; common very fine roots between peds; many fine and medium tubular pores; 10 percent fine distinct gray (10YR 5/1) iron depletions on faces of peds with diffuse boundaries; 1 percent fine distinct yellowish brown (10YR 5/6) masses of oxidized iron on vertical faces of peds with diffuse boundaries; very strongly acid; gradual wavy boundary.

E/Btg—43 to 55 inches; 20 percent light brownish gray (10YR 6/2) and 70 percent very pale brown (10YR 7/3), fine sandy loam; firm, hard; 15 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron on vertical faces of peds with diffuse boundaries; 5 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; 10 percent brittle material; very strongly acid; gradual wavy boundary.

Btg/Eg1—55 to 67 inches; 40 percent light gray (10YR 7/2) and light brownish gray (10YR 6/2), fine sandy loam; firm, hard; 15 percent medium and coarse distinct brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 5 percent fine prominent strong brown (7.5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; the E portion consists of albic material 1/8 to 1 inch wide between prisms and is a clay depletion because of aquic conditions; 10 percent brittle material; very strongly acid; gradual wavy boundary.

Btg/Eg2—67 to 80 inches; 40 percent light gray (10YR 7/2) and light brownish gray (10YR 6/2), fine sandy loam; firm, very hard; 2 percent prominent grayish brown (10YR 5/2) clay films on faces of peds; 8 percent fine and medium distinct brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 5 percent fine prominent strong brown (7.5YR 4/6) masses of oxidized iron on faces of peds with clear boundaries; the E portion consists of albic material 1/8 to 1 inch wide between prisms and is a clay depletion because of aquic conditions; 25 percent brittle material; very strongly acid.

Range in Characteristics

The soil moisture is an udic soil moisture regime. The soil moisture control section is 8 to 24 inches. The soil moisture control section remains moist in some or all parts for more than 275 cumulative days in normal years. Mean annual soil temperature ranges from 69 to 71 degrees F.

Solum thickness is more than 80 inches. Particle-size control section (weighted average) clay content ranges from 2 to 8 percent. Aluminum saturation percent ranges from 70 to 100 percent. CEC/clay ratio ranges from 0.30 to 0.40. Iron by

ammonium oxalate in Bhs and Bs ranges from 0.04 to 0.09. Reaction ranges from extremely acid or very strongly acid throughout.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. Texture is loamy fine sand. Reaction is extremely acid or very strongly acid.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is loamy fine sand. Reaction is extremely acid or very strongly acid.

The Bhs horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 or 2. Texture is fine sandy loam. Common ortstein nodules are present in shades of red, brown, yellow, and black, and are weakly cemented to moderately cemented. Reaction is extremely acid or very strongly acid.

The Bs horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4. Texture is loamy very fine sand or fine sandy loam. Redoximorphic features in shades of brown or yellow range from few to common. Common ortstein nodules are present in shades of red, brown, yellow, and black, and are weakly to moderately cemented. Reaction is extremely acid or very strongly acid.

The E’ has hue of 10YR, value of 7 or 8, and chroma of 3 or 4. Texture is loamy fine sand or fine sandy loam. Redoximorphic features in shades of brown and gray range from few to common. Reaction is extremely acid or very strongly acid.

The E/Btg horizon, where present, for the E portion has hue of 10YR, value of 7 or 8, and chroma of 3 or 4; for the Btg portion, has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is loamy fine sand or fine sandy loam. Redoximorphic features in shades of brown and gray range from few to many throughout. Reaction ranges from extremely acid or very strongly acid.

The Btg/Eg horizon has, for the Btg portion, hue of 10YR, value of 5 to 7, and chroma of 1 or 2; for the Eg portion, has hue of 7.5YR or 10YR, value of 6 to 8, and chroma of 1 or 2. Texture is fine sandy loam or loam. Redoximorphic features in shades of red, brown, yellow, gray, blue, or green range from few to common. In most pedons, 10 to 40 percent of the matrix is brittle. Reaction ranges from extremely acid or very strongly acid.

Belrose Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: River valley on coastal plain
Landform: Terrace riser
Parent material: Loamy alluvium of late Pleistocene age
Geology: Deweyville Formation
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 3 percent

Associated Soils

- Kenefick soils are fine-loamy and are on similar positions.
- McNeely soils are sandy throughout and are on similar positions.
- Spurger soils are fine and are on similar positions.
- Tyden soils are very poorly drained and are in lower positions.
- Votaw soils are sandy throughout and are on similar positions.

Taxonomic Classification

Coarse-loamy, siliceous, superactive, thermic Oxyaquic Paleudults

Typical Pedon

Belrose loamy very fine sand (fig. 16) in an area of Belrose loamy very fine sand, 1 to 3 percent slopes; located in Hardin County, Texas, from the intersection of Farm Road 92 and Texas Highway 327 in Silsbee, 3.3 miles south on Farm Road 92, 0.5 mile east on county road, 0.8 mile east on forest road, and 50 feet north in forest. Silsbee, Texas USGS Quadrangle; Latitude—30 degrees, 17 minutes, 50.40 seconds N., and Longitude—94 degrees, 10 minutes, 4.20 seconds W.

A—0 to 5 inches; brown (10YR 4/3), loamy very fine sand; weak fine subangular blocky structure; very friable, soft; many very fine to coarse roots throughout; many fine and medium moderate continuity interstitial and tubular pores; 1 percent fine and medium threadlike insect casts throughout; very strongly acid; clear smooth boundary.

Bw1—5 to 13 inches; yellowish brown (10YR 5/4), loamy very fine sand; moderate medium subangular blocky structure; very friable, soft; many very fine to coarse roots throughout; many fine and medium moderate continuity interstitial and tubular pores; 1 percent fine and medium threadlike insect casts throughout; very strongly acid; gradual wavy boundary.

Bw2—13 to 20 inches; 89 percent yellowish brown (10YR 5/4), loamy very fine sand; moderate medium subangular blocky structure; very friable, soft; many very fine to coarse roots throughout; many fine moderate continuity vesicular and tubular and common medium moderate continuity vesicular and tubular pores; 5 percent by lateral area albic tongues; 1 percent fine and medium threadlike insect casts throughout; 5 percent very pale brown (10YR 8/3) albic material in pockets along root channels and in pores; strongly acid; gradual wavy boundary.

Bw/E1—20 to 31 inches; 69 percent yellowish brown (10YR 5/6) and 15 percent very pale brown (10YR 8/3), loamy very fine sand; moderate medium prismatic structure parting to moderate medium subangular blocky; friable, slightly hard; many fine and medium roots throughout; many fine moderate continuity vesicular and tubular and common medium moderate continuity vesicular and tubular pores; 15 percent by lateral area albic tongues; 1 percent fine and medium threadlike insect casts throughout; the E portion of this horizon consists of pockets of albic material 1/8 to 1/4 inch wide along root channels and in pores; strongly acid; diffuse wavy boundary.

Bw/E2—31 to 44 inches; 70 percent brownish yellow (10YR 6/6) and 30 percent very pale brown (10YR 8/3), loamy very fine sand; moderate medium prismatic structure parting to moderate medium subangular blocky; friable, slightly hard; common fine and medium roots throughout; many fine moderate continuity vesicular and tubular and common medium moderate continuity vesicular and tubular pores; 30 percent by lateral area albic tongues; 1 percent yellowish red (5YR 5/8) clay bridges; 6 percent fine distinct yellowish brown (10YR 5/4) masses of oxidized iron throughout with diffuse boundaries; 2 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron on faces of peds with clear boundaries; 1 percent fine distinct light brownish gray (10YR 6/2) iron depletions lining pores with sharp boundaries; 1 percent fine and medium threadlike insect casts throughout; 1 percent yellowish red (5YR 5/8) lamella that is 1/8 to 1/4 inch thick; the E portion of this horizon consists of pockets of albic material 1/8 to 1/2 inch wide along root channels and in pores; strongly acid; gradual wavy boundary.

E/Bt—44 to 63 inches; 60 percent very pale brown (10YR 8/3) and 30 percent brownish yellow (10YR 6/6), loamy very fine sand; weak coarse prismatic structure parting to moderate medium subangular blocky; friable, slightly hard; common fine roots throughout and common medium roots throughout; many

Figure 16.—Profile of Belrose loamy very fine sand, 1 to 3 percent slopes.

fine moderate continuity vesicular and tubular and common medium moderate continuity vesicular and tubular pores; 20 percent by lateral area argillic tongues; 20 percent faint brownish yellow (10YR 6/6) clay films on vertical faces of peds; 8 percent fine and medium distinct yellowish brown (10YR 5/4) masses of oxidized iron in matrix with diffuse boundaries; 5 percent fine and medium prominent brownish yellow (10YR 6/8) masses of oxidized iron in matrix with diffuse boundaries; 1 percent fine distinct light brownish gray (10YR 6/2) iron depletions lining pores with sharp boundaries; 1 percent fine and medium threadlike insect casts throughout; the E portion of the horizon consists of interfingering 1/2 to 4 inches wide; 10 percent of the total volume is very pale brown (10YR 8/2) albic material in the interior of the E; strongly acid; gradual wavy boundary.

Bt/E—63 to 75 inches; 60 percent brownish yellow (10YR 6/8) and 40 percent very pale brown (10YR 8/3), very fine sandy loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm, slightly hard; common fine and medium roots throughout; common fine and medium moderate continuity vesicular and tubular pores; 40 percent by lateral area albic tongues; 10 percent prominent dark yellowish brown (10YR 4/6) clay films on faces of peds and in pores; 5 percent fine and medium distinct yellow (10YR 7/6) masses of oxidized iron throughout with diffuse boundaries; 3 percent fine prominent red (2.5YR 4/8) masses of oxidized iron on faces of

peds with clear boundaries; 3 percent fine prominent red (2.5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 2 percent fine and medium prominent yellowish red (5YR 5/8) masses of oxidized iron throughout with clear boundaries; 1 percent fine distinct light brownish gray (10YR 6/2) iron depletions lining pores with sharp boundaries; the E consists of albic material 1/4 to 1/2-inch wide between peds; strongly acid; diffuse wavy boundary.

E'/Bt—75 to 80 inches; 50 percent very pale brown (10YR 8/3) and 40 percent reddish yellow (7.5YR 6/8), loamy fine sand; moderate coarse prismatic structure parting to moderate medium subangular blocky; friable, slightly hard; common fine roots throughout; common fine moderate continuity vesicular and tubular pores; 40 percent by lateral area argillic tongues; 1 percent faint strong brown (7.5YR 5/8) clay films between sand grains; 10 percent fine and medium prominent brown (7.5YR 5/4) masses of oxidized iron throughout with diffuse boundaries; 1 percent fine distinct light brownish gray (10YR 6/2) iron depletions lining pores with sharp boundaries; 1 percent fine and medium spherical extremely weakly cemented brown (7.5YR 5/4) clay bodies throughout; the E consists of albic material 1/4 to 1/2-inch wide between peds; 10 percent very pale brown (10YR 8/2) albic materials in vertical streaks in the E; very strongly acid.

Range in Characteristics

The soil moisture is an udic soil moisture regime. The soil moisture control section is 8 to 24 inches. The soil moisture control section remains moist in some or all parts for more than 275 cumulative days in normal years. Mean annual soil temperature ranges from 69 to 71 degrees F.

Solum thickness is more than 80 inches. Depth to argillic horizon ranges from 15 to 22 inches. Depth to glossic horizon ranges from 15 to 22 inches. Depth to redox concentrations ranges from 13 to 37 inches. Depth to redox depletions ranges from 31 to 42 inches. Particle-size control section (weighted average) clay content ranges from 4 to 10 percent. Base saturation ranges from 20 to 30 percent CEC/clay ratio ranges from 0.70 to 1.50.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is loamy very fine sand. Reaction is extremely acid to strongly acid.

The E horizon, where present, has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 6. Texture is loamy very fine sand, fine sandy loam, or very fine sandy loam. Reaction is extremely acid to strongly acid.

The Bw horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 6. Texture is loamy very fine sand or fine sandy loam. Albic material occurs as streaks and pockets or pockets, and ranges from 1 to 5 percent.

The Bw part of the Bw/E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma 4 to 6. The E part has hue of 7.5YR or 10YR, value of 6 to 8, and chroma of 3 or 4. Texture is loamy very fine sand or fine sandy loam. Iron concentrations in shades of red, brown, or yellow range from 3 to 8 percent.

The Bt/E horizon, for the Bt part, has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 6 to 8; for the E part, has hue of 7.5YR or 10YR, value of 7 or 8, and chroma of 2 or 3. Texture is fine sandy loam, very fine sandy loam, or loam. Redoximorphic features in shades of red, brown, yellow, and gray range from few to common. Reaction is extremely acid to strongly acid.

The E'/Bt horizon, for the E' part, has hue of 7.5YR or 10YR, value of 7 or 8, and chroma of 2 or 3; for the Bt Part, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. Texture is loamy fine sand or fine sandy loam. Redoximorphic features in shades of red, brown, yellow, and gray range from few to common. Reaction is extremely acid to strongly acid.

Besner Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Stream terrace on coastal plain
Landform: Mound on tread
Parent material: Loamy alluvium
Geology: Quaternary terraces
Drainage class: Well drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent

Associated Soils

- Alazan soils have a water table within 40 inches of the surface.
- Mollville soils in low or intermound areas.

Taxonomic Classification

Coarse-loamy, siliceous, semiactive, thermic Typic Glossudalfs

Typical Pedon

Besner fine sandy loam in an area of Mollville-Besner complex, 0 to 1 percent slopes; from the intersection of U.S. Highway 69 and U.S. Highway 287, in Woodville; 15.1 miles northwest on U.S. Highway 287 to Chester, Texas, 3.8 miles north on Farm Road 2097 to end of pavement, 0.3 mile north on continuing on unpaved road, left at "Y" 2.0 miles northwest, 1.45 miles north on adjoining road, 4.05 miles northeast on adjoining road, and 50 feet northwest of road on a mound in grass-herbaceous cover. Wolf Hill, Texas USGS Quadrangle; Latitude—31 degrees, 1 minute, 59.98 seconds N., and Longitude—94 degrees, 34 minutes, 59.70 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3), fine sandy loam; 2 percent fine faint yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; very friable; moderately acid; clear smooth boundary.

E1—8 to 17 inches; yellowish brown (10YR 5/4), fine sandy loam; weak fine subangular blocky structure; very friable; strongly acid; gradual wavy boundary.

E2—17 to 30 inches; pale brown (10YR 6/3), fine sandy loam; weak fine subangular blocky structure; very friable; 5 percent medium distinct iron-manganese masses; strongly acid; clear wavy boundary.

Bt/E1—30 to 42 inches; 70 percent strong brown (7.5YR 5/6) and 30 percent pale brown (10YR 6/3), fine sandy loam; weak medium subangular blocky structure; friable; 10YR 6/3 above is (E) material; strongly acid; gradual wavy boundary.

Bt/E2—42 to 51 inches; 65 percent yellowish brown (10YR 5/6) and 25 percent pale brown (10YR 6/3), loam; weak medium subangular blocky structure; friable; 10 percent medium distinct masses of oxidized iron; pale brown (10YR 6/3) above is (E) material; strongly acid; gradual wavy boundary.

Bt/E3—51 to 71 inches; 70 percent yellowish brown (10YR 5/6) and 25 percent pale brown (10YR 6/3), loam; weak medium subangular blocky structure; friable; 5 percent medium prominent plinthite nodules; pale brown (10YR 6/3) above is (E) material; strongly acid; gradual wavy boundary.

Bt/E4—71 to 80 inches; 65 percent brownish yellow (10YR 6/6) and 25 percent light gray (10YR 7/2), loam; weak medium subangular blocky structure; friable; 5 percent medium distinct strong brown (7.5YR 5/8) and 5 percent medium distinct dark yellowish brown (10YR 4/6) masses of oxidized iron; light gray (10YR 7/2) above is (E) material; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The weighted average clay content of the control section ranges from 12 to 18 percent, and the silt content ranges from 25 to 40 percent. Combined thickness of the A and E horizons is 20 to 40 inches. The reaction ranges from extremely acid to slightly acid throughout.

The A horizon has colors in shades of brown with hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is fine sandy loam.

The E horizon has a hue of 10YR, value of 5 to 7, and chroma of 2 to 4. Texture is fine sandy loam, very fine sandy loam, or loam. Redoximorphic features in shades of yellow, brown, or gray range from none to common. Some pedons have a BE horizon with chroma of 6 or more.

A thin E/Bt horizon is present in some pedons. Texture is fine sandy loam, very fine sandy loam, or loam. The E parts have hue of 10YR, value of 5 to 7, and chroma of 2 to 4 and texture is fine sandy loam; the Bt parts have hue of 7.5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 4 to 8 and texture is fine sandy loam, very fine sandy loam, or loam. The Bt part generally comprises 25 to 45 percent of the volume in the E/Bt horizon.

The upper Bt/E has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8. The lower Bt/E horizon has a hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 8. Iron accumulations in shades of red, brown, or yellow range from few to common in most pedons. Texture is fine sandy loam, very fine sandy loam, or loam. However, some pedons have sandy clay loam texture below a depth of 60 inches. Albic materials (E parts) make up 5 to 35 percent of Bt/E horizon and make up 15 percent or more in one or more subhorizons of the Bt/E horizon. The Bt parts have 5 to 20 percent brittle peds.

Bleakwood Series

MLRA: 133B—Western Coastal Plain and 152B—Western Gulf Coast Flatwoods
Local physiographic area: East Texas Timberlands
Landscape: River valley on coastal plain
Landform: Channel
Parent material: Loamy alluvium of Holocene age
Geology: Holocene alluvium
Drainage class: Poorly drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Estes soils are clayey throughout.
- Iulus soils are moderately well drained and are in a coarse-loamy family.

Taxonomic Classification

Fine-loamy, siliceous, active, acid, thermic Typic Endoaquepts

Typical Pedon

Bleakwood loam in an area of Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded; from the intersection of Farm Road 1943 and Farm Road 92 in Fred, Texas, 10.2 miles west on Farm Road 1943, 4.1 miles south on county road, 0.5 miles west on county road, 600 feet south on forest trail, and 30 feet east of trail in swale. Hicksbaugh, Texas USGS Quadrangle; Latitude—30 degrees, 32 minutes, 51.50 seconds N., and Longitude—94 degrees, 19 minutes, 55.20 seconds W.

Ag—0 to 3 inches; grayish brown (10YR 5/2), loam; weak medium subangular blocky structure; firm, hard, nonsticky, nonplastic; many fine and medium roots; common fine interstitial and tubular pores; 15 percent fine and medium yellowish brown (10YR 5/4) masses of oxidized iron; 10 percent fine brownish yellow (10YR 6/6) masses of oxidized iron; strongly acid; clear smooth boundary.

Bg1—3 to 11 inches; light brownish gray (10YR 6/2), loam; weak medium subangular blocky structure; firm, hard, nonsticky, nonplastic; many fine and medium roots; common fine interstitial and tubular pores; 15 percent fine and medium brownish yellow (10YR 6/6) masses of oxidized iron; strongly acid; gradual smooth boundary.

Bg2—11 to 20 inches; light brownish gray (10YR 6/2), loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard, nonsticky, nonplastic; common fine and medium roots; common fine interstitial and tubular pores; 20 percent fine and medium strong brown (7.5YR 5/8) and 2 percent fine reddish brown (5YR 5/4) masses of oxidized iron; 1 percent fine spherical black (N 2.5/) iron-manganese masses throughout; strongly acid; gradual smooth boundary.

Bg3—20 to 33 inches; light brownish gray (10YR 6/2), clay loam; weak medium prismatic structure parting to weak medium subangular blocky structure; firm, hard, slightly sticky, slightly plastic; common fine roots; common very fine and fine interstitial and tubular pores; 15 percent fine and medium brownish yellow (10YR 6/6) masses of oxidized iron; 5 percent fine and medium strong brown (7.5YR 5/8) and 2 percent fine yellowish red (5YR 5/6) masses of oxidized iron; 1 percent fine spherical black (N 2.5/) iron-manganese masses throughout; strongly acid; gradual smooth boundary.

Bg4—33 to 49 inches; light brownish gray (10YR 6/2), sandy clay loam; weak medium prismatic structure; very firm, very hard, slightly sticky, slightly plastic; common very fine roots; common very fine and fine interstitial and tubular pores; 15 percent fine and medium strong brown (7.5YR 5/6) and 5 percent fine yellowish red (5YR 5/6) masses of oxidized iron; 1 percent fine spherical black (N 2.5/) iron-manganese masses throughout; strongly acid; gradual smooth boundary.

Bg5—49 to 64 inches; light brownish gray (10YR 6/2), sandy clay loam; weak medium prismatic structure; very firm, very hard, slightly sticky, slightly plastic; common very fine roots; common very fine and fine interstitial and tubular pores; 20 percent medium yellowish brown (10YR 5/8) and 5 percent fine and medium strong brown (7.5YR 5/6) masses of oxidized iron; 1 percent fine spherical black (N 2.5/) iron-manganese masses throughout; very strongly acid; gradual smooth boundary.

Bg6—64 to 80 inches; light brownish gray (2.5Y 6/2), fine sandy loam; weak medium prismatic structure; friable, hard, nonsticky, nonplastic; common very fine roots; common very fine and fine interstitial and tubular pores; 25 percent medium and coarse strong brown (7.5YR 5/6) and 10 percent fine and medium yellowish red (5YR 5/6) masses of oxidized iron; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Organic carbon content ranges from 0.2 to 0.4 percent at a depth of 50 inches below the mineral soil surface.

The A horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4. Texture is loam. Reaction ranges from very strongly acid to slightly acid.

The Bg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Masses of iron accumulation range from few to many in shades of brown and yellow. Texture is fine sandy loam, loam, sandy clay loam, or clay loam. The weighted average clay content of the 10- to 40-inch control section ranges from 18 to 35 percent clay and contains more than 15 percent sand that is coarser than very fine sand. Reaction is very strongly acid or strongly acid.

The C horizon, where present, has color and texture similar to the Bg horizon. Reaction is very strongly acid or strongly acid.

Bonwier Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Side slope on interfluve
Parent material: Stratified loamy and clayey weakly consolidated sediments of Pleistocene age
Geology: Willis Formation
Drainage class: Well drained
Slowest permeability: Slow
Soil depth class: 20 to 40 inches to a bedrock (densic) layer
Shrink-swell potential: Moderate
Slope: 5 to 15 percent

Associated Soils

- Doucette soils have a thick sandy epipedon.
- Newco soils are moderately well drained.
- Stringtown soils have a fine loamy control section.
- Urland soils are greater than 40 inches thick.

Taxonomic Classification

Fine, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Bonwier fine sandy loam in an area of Stringtown-Bonwier complex, 5 to 15 percent slopes; from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 4.9 miles west on U.S. Highway 190, 8.5 miles south and southwest on Farm Road 256 and C.R. 1150 and the continuing woods road to "Y" intersection, 1.1 mile west along woods road, and 70 feet north in woods. Jacks Creek North, Texas USGS Quadrangle; Latitude—30 degrees, 39 minutes, 37.30 seconds N., and Longitude—94 degrees, 33 minutes, 3.80 seconds W.

A—0 to 3 inches; brown (10YR 4/3), fine sandy loam; single grain; very friable, loose; 5 percent medium prominent spherical indurated cemented ironstone nodules in matrix; moderately acid; clear smooth boundary.

E—3 to 13 inches; light yellowish brown (10YR 6/4), fine sandy loam; single grain; very friable, loose; moderately acid; clear wavy boundary.

Bt—13 to 23 inches; yellowish red (5YR 5/8), sandy clay; 15 percent medium distinct brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm, hard; 10 percent continuous clay films; 10 percent medium prominent spherical indurated cemented ironstone nodules in matrix; strongly acid; gradual wavy boundary.

BC—23 to 34 inches; yellowish red (5YR 5/8), sandy clay; 15 percent medium distinct brownish yellow (10YR 6/8) mottles; weak fine subangular blocky structure; friable, slightly hard; 3 percent fine distinct irregular barite masses between peds; very strongly acid; gradual wavy boundary.

Cd1—34 to 40 inches; yellowish red (5YR 5/8), noncemented, sandy loam; 10 percent coarse distinct brownish yellow (10YR 6/6) and 10 percent medium distinct strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly hard; very strongly acid; gradual wavy boundary.

Cd2—40 to 51 inches; reddish yellow (7.5YR 6/8), noncemented, sandy loam; 10 percent fine distinct yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure; very friable, soft; discontinuous distinct silt coats on surfaces along pores; 2 percent fine prominent spherical indurated cemented ironstone nodules in matrix; very strongly acid; gradual wavy boundary.

Cd3—51 to 63 inches; brownish yellow (10YR 6/6), noncemented, fine sandy loam; 10 percent medium prominent yellowish red (5YR 5/8) mottles; weak fine granular structure; very friable, soft; discontinuous distinct silt coats on surfaces along pores; very strongly acid.

Range in Characteristics

Solum thickness ranges from 20 to 40 inches. The clay content of the control section ranges from 40 to 60 percent. Base saturation at 50 inches below top of Bt ranges from 5 to 25 percent.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, chroma of 1 to 3. Texture is fine sandy loam. Reaction is very strongly acid to moderately acid.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, chroma of 3 or 4. Texture is loamy fine sand, sandy loam, fine sandy loam, or loam. Reaction is very strongly acid to moderately acid.

The Bt horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 4 to 8. Mottles range from none to common with hue of 5YR to 10YR, value of 3 to 7, and chroma of 1 to 8. These mottles are concentrated in the lower part. Texture is sandy clay or clay. Gray shale fragments range from none to common. Some pedons have 7.5YR hue in the lower part of the Bt horizon. Strata of sandy clay loam occur in places. The Bt horizon contains 1 to 10 percent by volume of angular ironstone fragments. Reaction is very strongly acid or strongly acid.

The B/C or BC horizon has reddish brown or yellow colors and is stratified or mottled in shades of red, brown, yellow, and gray. The degree of weathering is variable and some pedons have BC horizons with only a few visible parent material fragments. Texture is fine sandy loam, sandy clay loam, or clay loam with or without weathered sandstone and shaly materials. Reaction is very strongly acid or strongly acid.

The Cd horizon is stratified beds of clay, soft weathered shale, and sandy materials with colors of gray, brown, and red. Texture is sandy loam, fine sandy loam, sandy clay loam, or clay loam with or without weathered sandstone and shale materials. Flakes of mica occur along cleavage planes between stratas in some pedons. Reaction is very strongly acid or strongly acid.

Boykin Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Ridge on interfluve
Parent material: Sandy and loamy sediments of Pleistocene age
Geology: Willis Formation
Drainage class: Well drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 5 percent

Associated Soils

- Doucette soils have yellow subsoils and diagnostic plinthite.
- Newco, Urland, and Bonwier soils have clayey subsoils.
- Shankler soils have sandy surfaces greater than 40 inches.

Taxonomic Classification

Loamy, siliceous, active, thermic Arenic Paleudults

Typical Pedon

Boykin loamy sand in an area of Boykin loamy sand, 1 to 5 percent slopes; from the intersection of U.S. Highway 69 and U.S. Highway 287, in Woodville; 2.9 miles west on U.S. Highway 190; 0.9 mile south and southwest on C.R. 1100, 1.3 mile south on International Paper Seed Orchard road, 0.45 mile west on woods road, and 75 feet north in clear cut area. Hillister, Texas USGS Quadrangle; Latitude—30 degrees, 44 minutes, 11.10 seconds N., and Longitude—94 degrees, 28 minutes, 33.40 seconds W.

A—0 to 8 inches; brown (10YR 4/3), loamy sand; 3 percent medium faint light yellowish brown (10YR 6/4) mottles; single grain; loose, nonsticky, nonplastic; moderately acid; clear smooth boundary.

E—8 to 22 inches; brown (10YR 5/3), loamy sand; single grain; loose, nonsticky, nonplastic; moderately acid; gradual wavy boundary.

E/Bt—22 to 28 inches; 97 percent pale brown (10YR 6/3), loamy sand and 3 percent light yellowish brown (10YR 6/4) fine sandy loam; single grain; loose, nonsticky, nonplastic; moderately acid; clear wavy boundary.

Bt1—28 to 32 inches; yellowish red (5YR 5/8), sandy clay loam; weak medium subangular blocky structure; hard, slightly sticky, moderately plastic; moderately acid; gradual wavy boundary.

Bt2—32 to 50 inches; red (2.5YR 5/8), sandy clay loam; weak medium subangular blocky structure; hard, slightly sticky, moderately plastic; moderately acid; gradual wavy boundary.

Bt3—50 to 57 inches; red (2.5YR 4/8), sandy clay loam; moderate medium subangular blocky structure; hard, slightly sticky, moderately plastic; 1 percent petroferric fragments; moderately acid; gradual wavy boundary.

Bt4—57 to 80 inches; red (2.5YR 4/8), sandy clay loam; moderate medium subangular blocky structure; hard, slightly sticky, moderately plastic; 3 percent petroferric fragments; moderately acid.

Range in Characteristics

Solum thickness is more than 80 inches. Clay content in the upper 20 inches of the argillic horizon ranges from 18 to 35 percent. Base saturation at 50 inches below the top of the Bt ranges from 5 to 20 percent. CEC ranges from about 10 to 20 milliequivalents per 100 grams.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4. Texture is loamy sand. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 4. Texture is loamy sand. Reaction ranges from very strongly acid to slightly acid.

The E/Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 through 4. Texture is loamy sand. Reaction ranges from very strongly acid to slightly acid.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 or 8. Texture is fine sandy loam or sandy clay loam. Mottles range from few to common in shades of red, brown, or yellow. A few plinthite nodules occur in the lower solum of some pedons, but constitute less than 5 percent of any horizon. Some pedons have skeletons with chroma of 2 or 3 in the lower Bt horizon. Reaction ranges from very strongly acid to moderately acid.

Browndell Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Backslope or side slope
Parent material: Acid tuffaceous siltstone and sandstone
Geology: Catahoula Formation
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Soil depth class: Shallow to a bedrock (paralithic) layer
Shrink-swell potential: High
Slope: 2 to 35 percent

Associated Soils

- Colita soils have a loamy textural control section.
- Corrigan soils are more than 20 inches thick.
- Rayburn soils are more than 20 inches thick.

Taxonomic Classification

Clayey, smectitic, thermic, shallow Oxyaquic Hapludalfs

Typical Pedon

Browndell loam in an area of Browndell-Kitterll complex, 2 to 5 percent slopes; from the intersection of U.S. Highway 69 and U.S. Highway 287, in Woodville; 15 miles northwest on U.S. Highway 287 to the town of Chester; 4.75 miles north and east on Farm Road 1745, 2.1 miles northeast on woods road, 1.25 northwest on adjoining woods road, 100 feet east on lane, and 20 feet south in clear-cut area. Chester, Texas USGS Quadrangle; Latitude—30 degrees, 59 minutes, 56.50 seconds N., and Longitude—94 degrees, 31 minutes, 58.70 seconds W.

Ap—0 to 4 inches; very dark grayish brown (10YR 3/2), loam; weak medium subangular blocky structure; friable, slightly hard; moderately acid; abrupt wavy boundary.

Bt—4 to 9 inches; dark grayish brown (10YR 4/2), clay; weak medium subangular blocky structure; very firm, very hard; 15 percent continuous clay films; very strongly acid; clear wavy boundary.

Bt/C—9 to 14 inches; 80 percent light brownish gray (10YR 6/2) and 20 percent light brownish gray (2.5Y 6/2), clay; moderate medium subangular blocky structure; very firm, very hard; 5 percent continuous clay films; very strongly acid; clear wavy boundary.

Cr/Bt1—14 to 18 inches; 80 percent light brownish gray (2.5Y 6/2) strongly cemented tuffaceous sandstone, and 10 percent dark grayish brown (10YR 4/2), silty clay; weak medium subangular blocky structure; very firm, very hard; 3 percent continuous clay films; 10 percent medium distinct strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

Cr/Bt2—18 to 24 inches; 70 percent light brownish gray (2.5Y 6/2) strongly cemented tuffaceous sandstone, and 10 percent very dark grayish brown (10YR 3/2), silty clay; weak medium subangular blocky structure; very firm, very hard; 2 percent continuous clay films; 20 percent medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; abrupt smooth boundary.

Cr—24 to 30 inches; light brownish gray (2.5Y 6/2) strongly cemented tuffaceous sandstone that has a silty clay texture: extremely acid.

Range in Characteristics

Solum thickness and depth to paralithic contact is 14 to 20 inches. Cobbles and stones that are 3 to 15 or more inches in diameter are on the surface of most pedons and cover none to 15 percent of the surface area.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. Where moist value is less than 3.5, the layer is thinner than 5 inches. Texture is fine sandy loam or loam. Gravel size fragments of siltstone or sandstone range from none to 10 percent by volume. Reaction ranges from very strongly acid to slightly acid.

The E horizon, where present, has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. Texture is fine sandy loam or loam. Combined thickness of the A and the E horizon, where present, is 3 to 10 inches. The boundary between the A or E and the Bt horizon is clear or abrupt, and is smooth or wavy. An abrupt textural change from the ochric epipedon to the argillic horizon is diagnostic for the series. Reaction ranges from very strongly acid to slightly acid.

The Bt and Bt/C horizons has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or 3. Iron accumulations and iron depletions are few or common and are brown or olive in the upper part, and brown and gray in the lower part. The gray matrix colors are presumed to be inherited from the parent material. Texture commonly is silty clay or clay, but may also range to clay loam in the upper part in some pedons. Clay content averages between 40 and 60 percent. Gravel size fragments range from 0 to 15 percent by volume. Reaction ranges from very strongly acid to moderately acid.

The Cr/Bt horizons have hue 10YR or 2.5Y, value of 3 to 6, chroma of 2 to 8. The Cr horizon is pale olive, light olive gray, light gray, gray, or light brownish gray weakly consolidated tuffaceous sandstone and mudstone that is bentonitic, but contains volcanic ash, volcanic glass, and other pyroclastic materials. The gray matrix colors are presumed to be inherited from the parent material. Texure is commonly silty clay or clay. Reaction ranges from very strongly acid to moderately acid.

Burkeville Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Shoulder, backslope or side slope on interfluve
Parent material: Weakly consolidated clays and marls
Geology: Fleming Formation
Drainage class: Well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Very high
Slope: 3 to 15 percent

Associated Soils

- Redco soils are not calcareous above 40 inches.
- Wiergate soils have mollic surface layers.

Taxonomic Classification

Very-fine, smectitic, thermic Chromic Hapluderts

Typical Pedon

Burkeville clay in an area of Burkeville clay, 5 to 15 percent slopes; located from the intersection of U.S. Highway 190 and U.S. Highway 69 in Woodville; 3.5 miles north on U.S. Highway 69, 5.3 miles east and north on Farm Road 1632, 0.5 mile northeast on Farm Road 256, 0.35 mile north and east on private lane, north through gate, 0.5 mile on farm lane, and 600 feet west in pasture. Woodville, Texas USGS Quadrangle; Latitude—30 degrees, 52 minutes, 41.81 seconds N., and Longitude—94 degrees, 28 minutes, 39.71 seconds W.

Ap—0 to 9 inches; very dark gray (10YR 3/1), clay; 3 percent fine faint dark gray (10YR 4/1) mottles; moderate medium subangular blocky structure; very firm, very hard, slightly sticky, slightly plastic; many fine roots and many medium roots; slightly acid; gradual wavy boundary.

Bss—9 to 18 inches; gray (10YR 5/1), clay; 3 percent fine faint very dark gray (10YR 3/1) mottles; moderate medium angular blocky structure; very firm, very hard, moderately sticky, moderately plastic; many fine roots; slightly acid; gradual wavy boundary.

Bkss1—18 to 39 inches; light brownish gray (2.5Y 6/2), clay; 3 percent fine distinct olive yellow (2.5Y 6/6) mottles; massive; extremely firm, extremely hard, moderately sticky, moderately plastic; many fine roots in cracks; 15 percent medium distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix; moderately alkaline; gradual wavy boundary.

Bkss2—39 to 57 inches; light gray (5Y 7/1), clay; 4 percent coarse prominent yellowish brown (10YR 5/6) mottles; massive; extremely firm, extremely hard, moderately sticky, moderately plastic; many fine roots in cracks; 20 percent medium distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix; moderately alkaline; gradual wavy boundary.

Bkss3—57 to 80 inches; light gray (5Y 7/1), clay; 5 percent coarse prominent yellowish brown (10YR 5/6) mottles; massive; extremely firm, extremely hard, moderately sticky, moderately plastic; many fine roots in cracks; 20 percent medium distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix; moderately alkaline.

Range in Characteristics

Solum thickness ranges from 60 to 80 inches. The weighted average clay content of the particle-size control section ranges from 60 to 70 percent. When dry, cracks 0.5 inch to more than 1 inch wide extend from the surface to a depth of more than 12 inches. Cracks remain open from 60 to 90 cumulative days in most years. Slickensides and wedge-shaped peds begin at a depth of 5 to 24 inches. Undistributed areas have gilgai microrelief with microhighs about 4 to 18 inches above the microlows. Distance from the center of the microknoll to the center of the microdepression ranges from 8 to 20 feet. Colors with chroma of 2 or less in the subsoil are considered to be lithochromic. Mottles with chroma of 3 or more, or redox concentrations, are considered to be relic or lithochromic. Reaction ranges from neutral to strongly alkaline.

The A has hue of 10YR to 5Y, value of 2 to 5, and chroma of 1 or 2. When the A horizon has color values less than 3.5, the thickness is less than 12 inches. Texture is clay.

The Bk horizon, where present, has hue of 10YR to 5Y value of 4 to 6, and chroma of 1 or 2. Texture is clay. Distinct mottles of brown, yellow, and olive range from few to common.

The Bss horizon has hue of 2.5Y or 5Y, value of 6 to 8, and chroma of 1 to 3. Texture is clay. This horizon has mottles of brown, yellow, or gray ranging from few to common. Slickensides range from many in the upper part to few in the lower part of this horizon.

The Bkss horizon has hue of 2.5Y or 5Y, value of 6 to 8, and chroma of 1 to 3. Texture is clay. This horizon has mottles of brown, yellow, or gray ranging from few to common. Slickensides range from many in the upper part to few in the lower part of this horizon.

Caneyhead Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: River valley on coastal plain
Landform: Swale on terrace
Parent material: Loamy alluvium of Quaternary age
Geology: Deweyville Formation
Drainage class: Poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 0 to 1 percent

Associated Soils

- Belrose soils are moderately well drained.
- Kenefick soils are well drained.
- Votaw soils are sandy throughout and on higher positions.

Taxonomic Classification

Fine-silty, siliceous, active, thermic Typic Glossaqualfs

Typical Pedon

Caneyhead silt loam (fig. 17) in an area of Belrose-Caneyhead complex, 0 to 1 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1013 in Spurger; 4.3 miles east on Farm Road 1013, and 75 feet south in forest. Magnolia

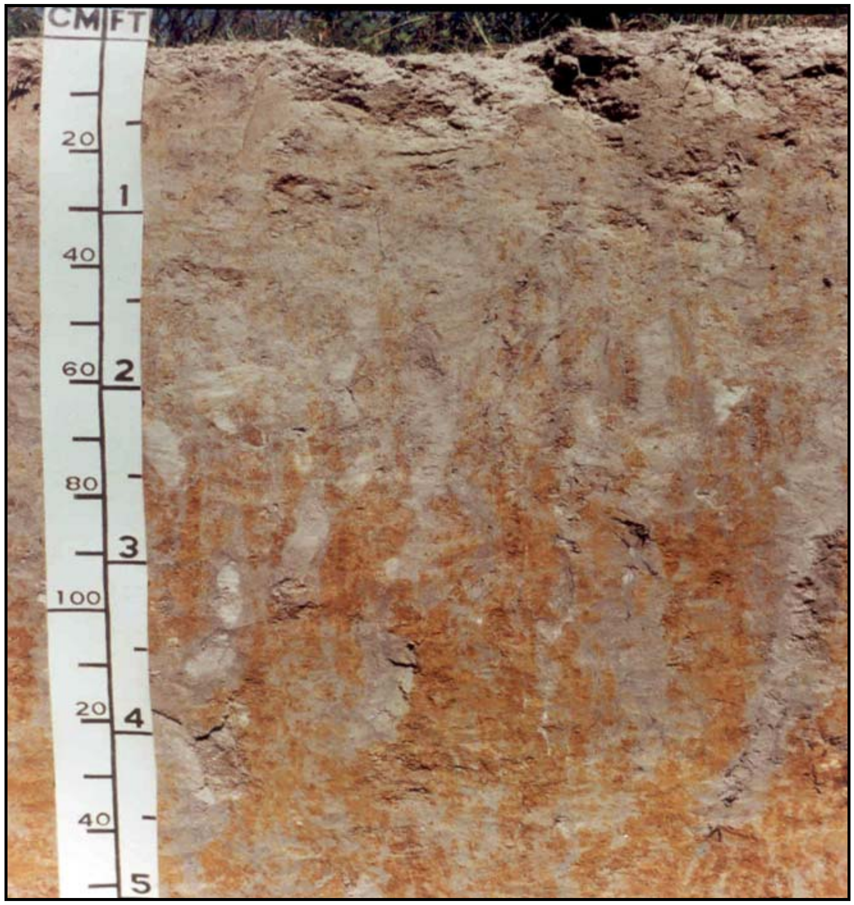

Figure 17.—Profile of Caneyhead silt loam in an area of Belrose-Caneyhead complex, 0 to 1 percent slopes.

Springs, Texas USGS Quadrangle; Latitude—30 degrees, 40 minutes, 42.00 seconds N., and Longitude—94 degrees, 6 minutes, 12.20 seconds W.

A—0 to 4 inches; grayish brown (10YR 5/2), silt loam; weak medium prismatic structure; firm, hard, slightly sticky, slightly plastic; many fine and medium roots; many fine and medium interstitial and tubular pores; 2 percent fine faint brown (7.5YR 4/3) iron-manganese masses lining pores with sharp boundaries; 20 percent fine and medium distinct light gray (10YR 7/2) iron depletions; about 10 percent crayfish krotovinas; strongly acid; clear smooth boundary.

Eg—4 to 18 inches; light brownish gray (10YR 6/2), silt loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard, slightly sticky, slightly plastic; common fine and medium roots; common very fine and fine interstitial and tubular pores; 10 percent fine and medium distinct strong brown (7.5YR 5/8) and 2 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron; 2 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron in matrix with diffuse boundaries; 2 percent fine faint brown (7.5YR 4/3) iron-manganese masses lining pores with sharp boundaries; about 20 percent crayfish krotovinas; very strongly acid; gradual wavy boundary.

Eg/Btg—18 to 27 inches; 80 percent light gray (10YR 7/2) and 20 percent light gray (10YR 7/1), silt loam; firm, hard, slightly sticky, slightly plastic; common

fine and medium roots; common very fine interstitial pores; 5 percent faint clay films on faces of peds; 5 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron in matrix with diffuse boundaries; 2 percent fine faint brown (7.5YR 4/3) iron-manganese masses lining pores with sharp boundaries; about 40 percent crayfish krotovinas; very strongly acid; gradual wavy boundary.

Btg/Eg1—27 to 43 inches; 60 percent light gray (2.5Y 7/1) and 40 percent light gray (2.5Y 7/2), loam; 15 percent fine and medium prominent strong brown (7.5YR 5/8) mottles; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard, moderately sticky, moderately plastic; common very fine roots; common very fine and fine interstitial and tubular pores; 15 percent faint gray (10YR 6/1) clay films on faces of peds; 5 percent fine prominent brownish yellow (10YR 6/6) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 2 percent fine faint brown (7.5YR 4/3) iron-manganese masses lining pores with sharp boundaries; 2 percent fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in matrix with diffuse boundaries; about 40 percent crayfish krotovinas; very strongly acid; gradual wavy boundary.

Btg/Eg2—43 to 61 inches; light gray (2.5Y 7/1) and 30 percent light gray (2.5Y 7/2), clay loam; 20 percent fine and medium prominent strong brown (7.5YR 5/8) and 5 percent fine prominent yellowish red (5YR 5/6) mottles; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm, hard, moderately sticky, moderately plastic; common very fine roots; common very fine and fine tubular pores; 20 percent faint light gray (10YR 7/1) clay films on faces of peds; 10 percent fine prominent brownish yellow (10YR 6/6) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 2 percent fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in matrix with diffuse boundaries; about 10 percent crayfish krotovinas; extremely acid; gradual wavy boundary.

Btg/Eg3—61 to 80 inches; light gray (2.5Y 7/1) and 45 percent pale yellow (2.5Y 8/2), loam; 20 percent fine and medium prominent strong brown (7.5YR 5/8) and 5 percent fine prominent yellowish red (5YR 5/6) mottles; weak medium prismatic structure parting to weak medium subangular blocky; very firm, very hard, very sticky, very plastic; common very fine roots; common very fine and fine tubular pores; 15 percent faint light gray (10YR 7/1) clay films on faces of peds; 15 percent medium and coarse prominent light yellowish brown (10YR 6/4) iron-manganese masses in matrix with clear boundaries; about 10 percent crayfish krotovinas; extremely acid; gradual wavy boundary.

Range in Characteristics

The soil moisture is an aquic soil moisture regime. Mean annual soil temperature ranges from 68 to 71 degrees F. Exchangeable Sodium Percentage ranges from 0 to 5 throughout. Aluminum saturation ranges from 35 to 56 percent throughout. Depth to albic materials ranges from 2 to 5 inches. Depth to argillic horizon ranges from 8 to 19 inches. Depth to glossic horizon ranges from 2 to 5 inches. Particle-size control section (weighted average) clay content ranges from 20 to 35 percent. Sands coarser than very fine sand range from 3 to 14 percent. CEC to clay ratio ranges from 0.4 to 0.5.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Texture is silt loam. Redoximorphic features in shades of brown are common. Crayfish krotovinas are common. Reaction is ultra acid or extremely acid.

The Eg horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2. Texture is very fine sandy loam, silt loam, or loam. Redoximorphic features in shades or red, brown, and yellow are common. Reaction is ultra acid or extremely acid.

The Eg/Btg horizon has, for the Eg part, hue of 10YR, value of 6 to 8, and chroma of 1 or 2; for the Btg part, hue of 10YR, value of 6 or 7, chroma of 1 or 2. Texture is very fine sandy loam, silt loam, or loam. Redoximorphic features in shades or red, brown, and yellow are common. Crayfish krotovinas are common to many. Reaction is ultra acid or extremely acid.

The Btg/Eg horizon has, for the Btg part, hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2; for the Eg part, hue of 10YR or 2.5Y, value of 6 to 8, chroma of 1 or 2. Texture is silt loam, loam, clay loam, or silty clay loam. Redoximorphic features in shades of red, brown, yellow, gray, green, and blue range from common to many. Crayfish krotovinas are common to many. Reaction is ultra acid or extremely acid.

Chambliss Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Ridge and summits on interfluve
Parent material: Sandy marine deposits
Geology: Willis Formation
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 8 percent

Associated Soils

- Boykin and Shankler soils have loamy subsoils.
- Hillister and Newco soils are on side slopes.

Taxonomic Classification

Siliceous, thermic Psammentic Paleudults

Typical Pedon

Chambliss loamy sand in an area of Chambliss loamy sand, 0 to 8 percent slopes; located from the intersection of U.S. Highway 287 and U.S. Highway 190 in Woodville; 2.9 miles west on U.S. Highway 190, 0.9 mile southwest on CR 1100, 2.95 miles south and southwest on International Paper Seed Orchard Road, 0.1 mile east on lane to property-line fence, 400 feet north, and 75 feet west of fence in replanted pine plantation. Hillister, Texas USGS Quadrangle; Latitude—30 degrees, 43 minutes, 6.80 seconds N., and Longitude 94 degrees, 27 minutes, 47.80 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3), loamy sand; 10 percent medium distinct very dark grayish brown (10YR 3/2) mottles; weak medium subangular blocky structure; very friable, loose; many fine and medium roots and common coarse roots; very strongly acid; clear wavy boundary.

Bw1—5 to 12 inches; reddish brown (5YR 4/4), loamy sand; 5 percent fine distinct reddish brown (5YR 4/3) mottles; moderate medium subangular blocky structure; very friable, loose; many fine and medium roots and common coarse roots; very strongly acid; clear wavy boundary.

Bw2—12 to 23 inches; red (2.5YR 4/6), loamy sand; weak coarse prismatic structure parting to weak medium subangular blocky; very friable, loose; many fine and medium roots and common coarse roots; 5 percent discontinuous

prominent light brown (7.5YR 6/3) skeletons; very strongly acid; gradual smooth boundary.

Bw3—23 to 32 inches; red (2.5YR 4/6), loamy sand; weak coarse subangular blocky structure parting to weak fine subangular blocky; very friable, soft; many fine and medium roots and common coarse roots; 10 percent discontinuous prominent light brown (7.5YR 6/3) skeletons; very strongly acid; gradual smooth boundary.

Bt1—32 to 50 inches; red (2.5YR 4/8), loamy sand; weak coarse subangular blocky structure parting to weak fine subangular blocky; very friable, soft; common fine and medium roots and common coarse roots; 5 percent discontinuous prominent brown (7.5YR 5/3) skeletons; very strongly acid; gradual smooth boundary.

Bt2—50 to 67 inches; red (2.5YR 4/8), loamy sand; weak coarse subangular blocky structure parting to weak fine subangular blocky; very friable, soft; 5 percent discontinuous prominent light brown (7.5YR 6/3) skeletons; very strongly acid; gradual smooth boundary.

Bt3—67 to 80 inches; red (2.5YR 5/8), loamy sand; weak coarse subangular blocky structure parting to weak fine subangular blocky; very friable, soft; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The reaction ranges from extremely acid to strongly acid, unless limed. The soil is dry in some part of the moisture control section for 75 to 90 days in most years. Rounded ironstone nodules mainly less than 1/2-inch across range from none to few throughout.

The A or Ap horizon has hue 7.5YR or 10YR, value of 3 to 5, and chroma of 3 or 4. Texture is loamy sand. Mottles in shades of brown or yellow range from few to none.

The E horizon, where present, has hue 7.5YR or 10YR, value of 4 to 7, and chroma of 3 or 4. Texture is loamy sand. Mottles in shades of brown or yellow range from few to none.

The Bw horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 or 8. Texture is loamy sand or loamy fine sand. Mottles in shades of brown or yellow range from few to none. Streaks and spots of uncoated sand range from none to about 5 percent.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 or 8. Texture is fine sand, loamy sand, or loamy fine sand and the Bt horizon contains at least 3 percent more clay than the horizon above. Streaks and spots of uncoated sand range from few to common.

Choates Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Footslopes on drainageways
Parent material: Loamy marine deposits
Geology: Willis Formation
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 5 percent

Associated Soils

- Pinetucky and Shankler soils are on well drained higher positions.

Taxonomic Classification

Loamy, siliceous, semiactive, thermic Arenic Plinthaquic Paleudults

Typical Pedon

Choates loamy sand (fig. 18) in an area of Choates loamy sand, 1 to 5 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 5.5 miles west on U.S. Highway 287, 0.6 mile north on woods road to pipeline at curve, 0.2 mile north on adjoining woods lane, and 75 feet east in plantation. Woodville, Texas USGS Quadrangle; Latitude—30 degrees, 50 minutes, 19.40 seconds N., and Longitude—94 degrees, 29 minutes, 29.00 seconds W.

Ap—0 to 4 inches; brown (10YR 4/3), loamy sand; weak fine subangular blocky structure; friable, soft, nonsticky, nonplastic; many fine and medium roots and many coarse roots; very strongly acid; clear wavy boundary.

E—4 to 20 inches; pale brown (10YR 6/3), loamy sand; weak coarse prismatic structure parting to weak fine subangular blocky; friable, soft, nonsticky, nonplastic; many fine and medium roots and common coarse roots; common fine pores; 2 percent coarse distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

Bt/E1—20 to 26 inches; strong brown (7.5YR 5/6), fine sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, hard, moderately sticky, slightly plastic; many fine and medium roots and common coarse roots; common fine and medium pores; 20 percent clay films; 25 percent medium and coarse prominent light brownish gray (10YR 6/2) masses of reduced iron; very strongly acid; gradual wavy boundary.

Bt/E2—26 to 40 inches; light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6), sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, very hard, moderately sticky, moderately plastic; many fine and medium roots and common coarse roots; common fine and medium and common coarse pores; 20 percent clay films; 2 percent medium prominent red (2.5YR 4/6) masses of oxidized iron; 2 percent plinthite nodules; very strongly acid; clear wavy boundary.

Btv/E1—40 to 61 inches; light brownish gray (10YR 6/2), sandy clay loam; weak coarse prismatic structure parting to strong medium and coarse angular blocky; firm, very hard, moderately sticky, moderately plastic; common fine and medium roots; common fine and medium and common coarse pores; 25 percent clay films; 25 percent medium and coarse prominent dark red (10R 3/6) and 15 percent fine and medium prominent strong brown (7.5YR 5/6) masses of oxidized iron; 15 percent plinthite nodules; very strongly acid; gradual wavy boundary.

Btv/E2—61 to 80 inches; light brownish gray (10YR 6/2), sandy clay loam; weak coarse prismatic structure parting to strong medium and coarse angular blocky; firm, very hard, moderately sticky, moderately plastic; common fine and medium roots; common fine and medium and common coarse pores; 25 percent clay films; 25 percent medium and coarse prominent dark red (10R 3/6) and 15 percent medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; 10 percent plinthite nodules; very strongly acid.

Range in Characteristics

Solum thickness is more than 60 inches. The combined sandy A and E horizons ranges from 20 to 40 inches thick. Depth to a horizon containing 5 to 20 percent

Figure 18.—Profile of Choates loamy sand, 1 to 5 percent slopes. This soil is on toeslopes on the landscape.

plinthite ranges from 30 to 60 inches. Base saturation at 50 inches below the top of the argillic horizon ranges from 15 to 35 percent.

The A horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is loamy sand. Reaction ranges from strongly acid to slightly acid.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 2 to 4. Texture is loamy sandy. Redox features in shades of brown or gray range from none to common. Reaction ranges from strongly acid to slightly acid.

The Bt horizons are mottled because of wetness, and the amount of gray mottling increases with depth. Matrix colors are in hue of 5YR to 10YR, value of 4 to 7, and chroma of 6 or 8. Low chroma redox features have hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2. Most pedons contain redox features in shades of red.

Texture is fine sandy loam or sandy clay loam. Plinthite ranges from 5 to 15 percent in some subhorizons of the Bt. Reaction ranges from extremely acid to strongly acid.

The Bt/E horizon has hue of 7.5YR to 10YR, value of 4 to 6; and chroma 2 to 8. Most pedons contain redox features in shades of red. Texture is fine sandy loam or sandy clay loam. Plinthite ranges from 5 to 15 percent in some subhorizons of the Bt. Reaction ranges from extremely acid to strongly acid.

The Btv and Btv/E horizon has hue of 10YR, value of 6 and chroma of 2. Texture is sandy clay loam. Redoximorphic features in shades of red and brown range from common to many. Concentration of plinthite nodules ranges from 5 to 20 percent. Reaction ranges from extremely acid to strongly acid.

The BC horizon, where present, is dominated by gray and yellow colors and is mottled in shades of red or brown. Reaction ranges from extremely acid to strongly acid.

Colita Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberland
Landscape: Inland dissected coastal plain
Landform: Interfluve
Parent material: Loamy residuum weathered from sandstone and siltstone
Geology: Catahoula Formation
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate
Soil depth class: Deep to a bedrock (paralithic) layer
Shrink-swell potential: Moderate
Slope: 0 to 3 percent

Associated Soils

- Corrigan and Rayburn soils have clayey subsoil.
- Kisatchie soils are on steeper slopes and are clayey.
- Laska soils are browner and in higher positions.

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Typic Glossaqualfs

Typical Pedon

Colita fine sandy loam in an area of Colita fine sandy loam, 1 to 3 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 14.8 miles northwest on U.S. Highway 287 to Chester, 4.7 miles north and east on Farm Road 1745; 1.7 mile northeast, southeast, and north on woods road, 0.9 mile northeast on adjoining woods road, and 50 feet north in woods. Chester, Texas USGS Quadrangle; Latitude—30 degrees, 58 minutes, 47.20 seconds N., and Longitude—94 degrees, 31 minutes, 24.30 seconds W.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2), fine sandy loam; friable, slightly hard; very strongly acid; gradual smooth boundary.

Eg1—4 to 17 inches; grayish brown (10YR 5/2), fine sandy loam; 2 percent medium faint yellowish brown (10YR 5/4) masses of oxidized iron; friable, slightly hard; very strongly acid; gradual smooth boundary.

Eg2—17 to 25 inches; grayish brown (10YR 5/2), fine sandy loam; friable, slightly hard; 2 percent medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; clear wavy boundary.

Btg/Eg—25 to 38 inches; gray (10YR 5/1), sandy clay loam; firm, hard; 10 percent discontinuous clay films; 5 percent fine prominent masses of oxidized iron on surfaces along root channels; 2 percent fine distinct masses of oxidized iron; 15 percent grayish brown (10YR 5/2) above is (Eg) material; very strongly acid; gradual wavy boundary.

Btg/C—38 to 48 inches; 20 percent dark gray (10YR 4/1) and 20 percent gray (10YR 5/1) and 10 percent pale yellow (2.5Y 7/4) and 10 percent light gray (2.5Y 7/2), sandy clay loam; firm, hard; 5 percent discontinuous clay films; 15 percent medium faint clay depletions on vertical faces of peds; 10 percent light gray (2.5Y 7/2) and 10 percent pale yellow (2.5Y 7/4) above are (C) material; very strongly acid; clear wavy boundary.

C/Btg—48 to 56 inches; 45 percent olive yellow (2.5Y 6/8), 40 percent (5Y 7/4) and 15 percent dark gray (10YR 4/1)(B), silty clay loam; very firm, very hard; 2 percent discontinuous clay films; 15 percent dark gray (10YR 4/1) material above is (Btg) material; very strongly acid; clear smooth boundary.

Cr—56 to 80 inches; pale yellow (2.5Y 8/4), strongly cemented tuffaceous sandstone that has a silty clay loam texture; very firm, very hard; very strongly acid.

Range in Characteristics

Solum thickness and depth to paralithic contact ranges from 40 to 60 inches. Base saturation at the paralithic contact ranges from 35 to 60 percent. The weighted average clay content in the control section typically is about 24 percent and the content of sand coarser than very fine sand is about 44 percent. Sodium absorption ratio is less than 10 throughout.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. Where value is less than 3.5 thickness is less than 6 inches. Texture is fine sandy loam. Reaction ranges from very strongly acid to moderately acid.

The Eg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is loamy fine sand, fine sandy loam, or very fine sandy loam. Reaction ranges from very strongly acid to moderately acid. Thickness ranges up to 8 inches.

The E part of the E/B horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. The B part has similar colors with redox features. The B part of the E/B horizon, where present, makes up about 10 to 40 percent by volume of the horizon. Texture is very fine sandy loam. Reaction ranges from very strongly acid to moderately acid.

The Btg/Eg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. Iron accumulations range from common to many in shades of brown. Texture is fine sandy loam, loam, or sandy clay loam. Intrusions of albic materials (Eg) into the horizon are mainly along vertical faces of peds. These intrusions are 2 millimeters to 30 millimeters wide and typically extend completely through the horizon. Filled crayfish burrows range from few to many. Reaction ranges from very strongly acid to moderately acid.

The Btg horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Redox features range from few to many in shades of brown. Texture is sandy clay loam, clay loam, or silty clay loam. Reaction ranges from very strongly acid through moderately acid. Electrical conductivity ranges from 0.2 to 2.0 mmhos/cm.

The Btg/C and C/Btg horizons have hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2 for the Btg part and hue of 2.5Y or 5Y, value of 6 to 8, and chroma of 1 to 4 for the C part. Texture is sandy clay loam, clay loam, or silty clay loam. Reaction ranges from very strongly acid to moderately acid.

The Cr horizon has hue of 2.5Y or 5Y, value of 6 to 8, and chroma of 1 to 4. It is firm, brittle tuffaceous siltstone or shale of clay loam or silty clay loam texture. Widely

scattered deposits of calcium carbonate and other white salts occur in fractures in some pedons.

Colmesneil Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Ridge on interfluve
Parent material: Sandy marine deposits
Geology: Willis Formation
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 8 percent

Associated Soils

- Doucette soils are on similar landscape positions and have a loamy argillic horizon.
- Rayburn soils have clayey subsoil.
- Shankler soils are on similar landscape positions and have a loamy argillic horizon.

Taxonomic Classification

Siliceous, thermic Lamellic Paleudults

Typical Pedon

Colmesneil loamy sand (fig. 19) in an area of Colmesneil loamy sand, 1 to 8 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 15.1 miles northwest on U.S. Highway 287 to the town of Chester; 3.8 miles north on Farm Road 2097 to end of pavement, 0.3 mile north on unpaved road continuation, left (northwest) at "Y" 2 miles, 1.45 mile north on adjoining woods road, 1.3 mile northeast and east on adjoining woods road, 0.6 mile northwest on woods road to hunter camp area, and 0.25 mile northeast to edge of clear cut area. Wolf Hill, Texas USGS Quadrangle; Latitude—31 degrees, 10 minutes, 2.80 seconds N., and Longitude—94 degrees, 36 minutes, 50.50 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3), loamy sand; weak medium subangular blocky structure; very friable, loose; many fine and medium roots and many coarse roots; strongly acid; gradual smooth boundary.

E1—7 to 13 inches; yellowish brown (10YR 5/4), loamy sand; moderate coarse subangular blocky parting to weak medium subangular blocky structure; very friable, loose; many fine and medium roots; moderately acid; gradual wavy boundary.

E2—13 to 29 inches; brown (10YR 5/4), loamy sand; moderate coarse subangular blocky parting to weak medium subangular blocky structure; very friable, loose; many fine and medium roots; slightly acid; gradual wavy boundary.

E/Bt1—29 to 47 inches; 70 percent light yellowish brown (10YR 6/4), 25 percent reddish yellow (7.5YR 6/6) and 5 percent yellowish red (5YR 5/8), loamy sand; weak coarse prismatic structure parting to weak coarse subangular blocky; very friable, soft; many fine and medium roots and many coarse roots; reddish yellow (7.5YR 6/6) material above is (B) material in the form of spots

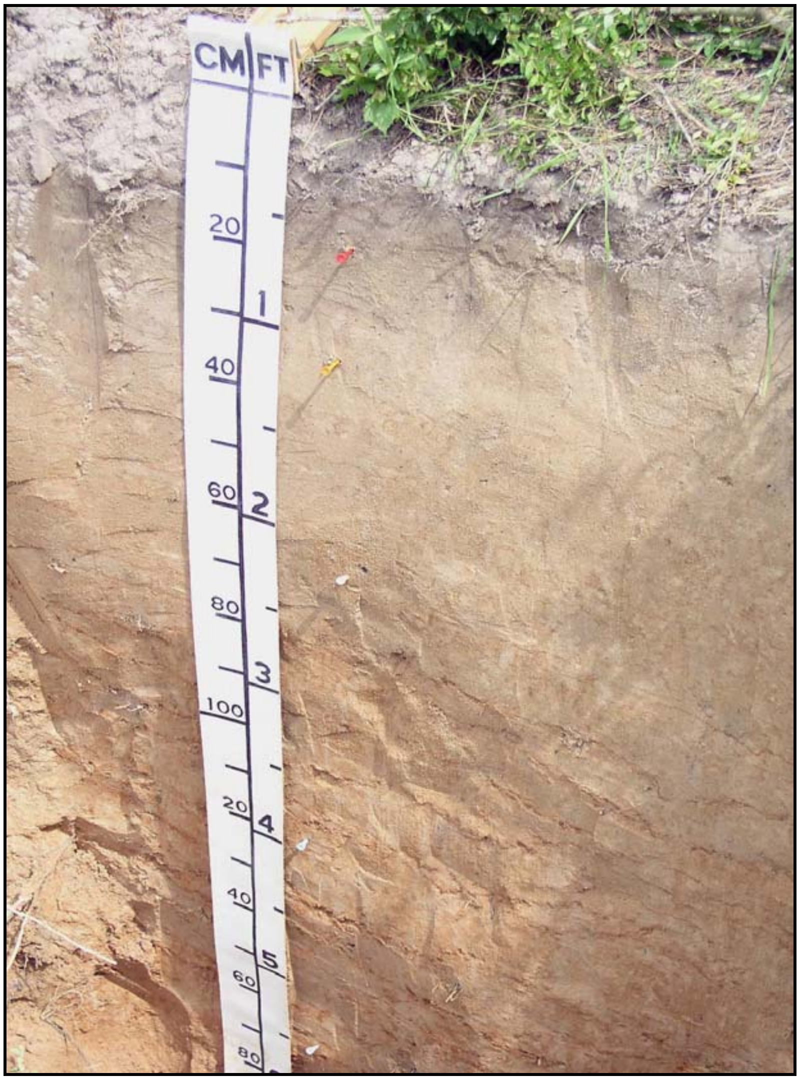

Figure 19.—Profile of Colmesneil loamy sand, 1 to 8 percent slopes. At a depth of about 30 inches, horizontal bands known as "lamellae" occur. These lamellae trap water and nutrients for plants and trees.

and lamellae 1 centimeter to 1.5 centimeters thick (5 observed in sampled area); slightly acid; gradual wavy boundary.

E/Bt2—47 to 66 inches; 60 percent light yellowish brown (10YR 6/4) and 35 percent yellowish red (5YR 5/8), loamy sand; weak coarse prismatic structure parting to weak coarse subangular blocky; very friable, soft; many fine and medium roots and many coarse roots; 5 percent medium prominent masses of oxidized iron; yellowish red (5YR 5/8) above is (B) material in the form of lamellae 1 centimeter to 2 centimeters thick (6 observed in sampled area), and spots of similar width; slightly acid; gradual wavy boundary.

Bt/E—66 to 80 inches; 60 percent yellowish red (5YR 5/8) and 40 percent light yellowish brown (10YR 6/4), loamy sand; weak coarse prismatic structure parting to weak coarse subangular blocky; very friable, soft; many fine and medium roots; yellowish brown (10YR 6/4) above is (E) material; moderately acid.

Range in Characteristics

Solum thickness is more than 80 inches. Reaction ranges from strongly acid through slightly acid. Base saturation from 20 to 35 percent. The soil is dry in some part of the moisture control section for 60 to 75 cumulative days in most years.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Texture is sand or loamy sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. Texture is sand or loamy sand.

The Bw horizon, where present, has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. Texture is sand or loamy sand. Randomly distributed pockets of clean sand grains range from none to few.

The E part of the E/Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. Texture of the E part is sand or loamy sand. The Bt part (lamellae or pockets) has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. The texture of the Bt part is loamy sand or sandy loam. Their composite thickness is more than 6 inches within a depth of 80 inches.

The Bt part of the Bt/E horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 or 8. Texture of the Bt part is loamy sand or sandy loam. The E part has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. Texture of the E part is sand or loamy sand.

Corrigan Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Side slopes on interfluve
Parent material: Acid tuffaceous fine siltstone and sandstone
Geology: Catahoula Formation
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Moderately deep to a bedrock (paralithic) layer
Shrink-swell potential: High
Slope: 1 to 15 percent

Associated Soils

- Browndell soils are 14 to 20 inches thick.
- Kitterll soils are loamy and are 4 to 14 inches thick.
- Rayburn soils are deep and have red subsoil.

Taxonomic Classification

Fine, smectitic, thermic Oxyaquic Vertic Hapludalfs

Typical Pedon

Corrigan loam in an area of Corrigan loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 190 and U.S. Highway 69 in Woodville; 11.9 miles north on U.S. Highway 69, 8.1 miles east on County Road 255, 0.95 mile northeast on County Road 3400, 0.85 mile west on County Road 3910, 0.55 mile northeast on Timber Road #10, 0.3 mile north on lane, and 30 feet east in clear-cut area. Boykin Spring, Texas USGS Quadrangle; Latitude—31 degrees, 0 minutes, 8.80 seconds N., and Longitude—94 degrees, 18 minutes, 13.20 seconds W.

Ap—0 to 6 inches; dark brown (10YR 3/3), loam; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; strongly acid; abrupt smooth boundary.

Bt1—6 to 13 inches; light brownish gray (10YR 6/2), clay; weak medium subangular blocky structure; very firm, very hard, very sticky, very plastic; 15 percent continuous clay films; 5 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron on surfaces along root channels; 2 percent fine distinct iron-manganese masses; very strongly acid; gradual wavy boundary.

Bt2—13 to 18 inches; light brownish gray (2.5Y 6/2), clay; weak medium subangular blocky structure; very firm, very hard, very sticky, very plastic; 10 percent discontinuous clay films; 10 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron on surfaces along root channels; very strongly acid; gradual wavy boundary.

Bt3—18 to 33 inches; light brownish gray (2.5Y 6/2), clay; weak medium subangular blocky structure; very firm, very hard, very sticky, very plastic; 5 percent discontinuous clay films; very strongly acid; gradual wavy boundary.

Cr—33 to 40 inches; 55 percent pale brown (10YR 6/3) and 45 percent light brownish gray (2.5Y 6/2) strongly cemented sandstone of sandy loam texture; very firm, very hard, very sticky, very plastic; very strongly acid.

Range in Characteristics

Solum thickness and depth to paralithic contact ranges from 20 to 40 inches. Combined thickness of the A and the E horizon ranges from 3 to 14 inches. Base saturation by sum of cations is 60 percent or more directly above the paralithic contact.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. Where moist values are less than 3.5, the horizon is less than 6 inches thick. Texture is loam. Reaction is very strongly acid to moderately acid.

The E horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 2. Texture is fine sandy loam or loam. Reaction is very strongly acid to moderately acid.

The upper part of the Bt horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 (the low chroma is believed to be due primarily to lithology rather than wetness). Redoximorphic features range from few to common in shades of red and brown. Clay content of the upper 20 inches of the Bt horizon average between 40 and 60 percent, but the upper few inches of the Bt horizon commonly ranges up to 70 percent clay. The COLE in the upper part of the Bt horizon is 0.09 to 0.14 but the potential linear extensibility is less than 6 centimeters in the upper 40 inches of the soil. Reaction is extremely acid to strongly acid.

The lower part of the Bt horizon, and the Bt/C horizon have hue of 10YR to 5Y, value of 4 to 7, and chroma of 2 to 4. Redoximorphic features in shades of gray and olive range from few to common. Texture is clay or silty clay. Reaction is extremely acid to strongly acid.

The Cr horizon has colors of pale olive, light olive gray, light gray, gray, or light brownish gray. It is weakly to strongly cemented tuffaceous siltstone or mudstone that is bentonitic and contains volcanic ash, volcanic glass or other pyroclastic materials. Reaction is extremely acid to moderately acid.

Cypress Series

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: River valley on coastal plain
Landform: Swamp on flood plain
Parent material: Clayey alluvium of Holocene age

Geology: Recent alluvium
Drainage class: Very poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 0 to 1 percent

Associated Soils

- Estes soils are clayey throughout.

Taxonomic Classification

Fine, mixed, superactive, acid, thermic Typic Fluvaquents

Typical Pedon

Cypress mucky clay in an area of Cypress mucky clay, 0 to 1 percent slopes, frequently flooded; located in Hardin County, Texas, from the intersection of Texas Highway 92 and Farm Road 2937 in Silsbee, 3.3 miles north on Farm Road 2937 to county road, 0.5 mile east on county road to oil field service road, 0.5 mile north on oil field service road, and 50 feet north in slough. Deserter Baygall, Texas USGS Quadrangle; Latitude—30 degrees, 26 minutes, 55.10 seconds N., and Longitude—94 degrees, 9 minutes, 44.80 seconds W.

Ag—0 to 12 inches; very dark grayish brown (10YR 3/2), mucky clay; massive; extremely firm, extremely hard; many very fine and fine roots and common medium roots; common fine interstitial pores; 2 percent by volume krotovinas; 3 percent fine faint dark grayish brown (10YR 4/2) iron-manganese masses on faces of peds with clear boundaries; extremely acid; clear smooth boundary.

Cg1—12 to 17 inches; dark gray (10YR 5/1), clay; massive; extremely firm, extremely hard; common very fine and fine roots; common very fine and fine interstitial pores; 5 percent by volume krotovinas; 7 percent fine prominent yellowish brown (10YR 5/6) masses of oxidized iron on surfaces along pores with clear boundaries; 5 percent fine faint gray (10YR 6/1) iron depletions in matrix surrounding redox concentrations with diffuse boundaries; extremely acid; gradual smooth boundary.

Cg2—17 to 35 inches; gray (10YR 5/1), clay; massive; extremely firm, extremely hard; common very fine to medium roots; common very fine tubular pores; 5 percent by volume krotovinas; 15 percent distinct dark gray (10YR 4/1) organic stains on vertical faces of peds; 10 percent fine prominent yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; extremely acid; gradual smooth boundary.

Cg3—35 to 43 inches; gray (2.5Y 6/1), clay; massive; extremely firm, extremely hard; common very fine to medium roots; common very fine tubular pores; 10 percent by volume krotovinas; 2 percent prominent dark gray (10YR 4/1) organic stains on vertical faces of peds; 12 percent fine and medium prominent brownish yellow (10YR 6/8) and 6 percent fine prominent reddish brown (5YR 4/4) masses of oxidized iron on faces of peds with clear boundaries; few thin strata 1 centimeter to 1.5 centimeters thick of silty clay loam texture; extremely acid; gradual wavy boundary.

Cg4—43 to 64 inches; gray (10YR 6/1), clay; massive; extremely firm, extremely hard; common very fine roots; common very fine tubular pores; 10 percent by volume krotovinas; 2 percent prominent dark gray (10YR 4/1) organic stains on vertical faces of peds; 10 percent fine and medium prominent brownish yellow (10YR 6/8) and 5 percent fine prominent brown (7.5YR 4/4) masses of

oxidized iron on faces of peds with clear boundaries; extremely acid; gradual wavy boundary.

Cg5—64 to 80 inches; gray (10YR 6/1), clay; massive; extremely firm, extremely hard; common very fine roots; common very fine tubular pores; 2 percent by volume krotovinas; 2 percent prominent dark gray (10YR 4/1) organic stains on vertical faces of peds; 20 percent fine and medium prominent brownish yellow (10YR 6/8) and 5 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; extremely acid.

Range in Characteristics

Solum thickness is 3 to 12 inches. Clay content in the control section ranges from 35 to 50 percent. Redoximorphic features in shades of brown, yellow, and gray range from few to many. Organic carbon content decreases irregularly with depth or is greater than 0.2 percent at a depth of 50 inches below the soil surface. Reaction ranges from extremely acid or very strongly acid throughout.

The Ag horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. Where value is 3, thickness is 6 inches or less. Redoximorphic features in shades of brown and gray range from none to common. Texture is mucky clay.

The Cg horizon has hue of 10YR to 5Y, 5GY, or 5G, value of 5 or 6, and chroma of 1, or it has neutral hue with value of 5 or 6. Redoximorphic features in shades of brown, gray, and olive to green range from few to many. Texture is clay loam, silty clay, or clay.

Dallardsville Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Pimple mound
Parent material: Loamy eolian deposits over loamy fluviomarine deposits of Pleistocene age
Geology: Deweyville Formation
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 0 to 1 percent

Associated Soils

- Kirbyville soils have a fine-loamy control section.
- Nona soils have diagnostic salinity and bioturbation.
- Otanya soils are well drained on higher landscape positions.

Taxonomic Classification

Coarse-loamy, siliceous, semiactive, thermic Oxyaquic Paleudults

Typical Pedon

Dallardsville very fine sandy loam in an area of Olive-Dallardsville complex, 0 to 1 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1943 in Fred, 2.2 miles south on Farm Road 92 to county road, 1.3 miles west on county road to forest road, 0.1 mile north and 0.6 mile northeast on forest road, and 150 feet west of road in forest. Fred, Texas USGS Quadrangle; Latitude—30 degrees, 32

minutes, 13.10 seconds N., and Longitude—94 degrees, 12 minutes, 25.00 seconds W.

A—0 to 9 inches; brown (10YR 4/3), very fine sandy loam; weak fine granular structure; very friable, loose; many medium and coarse roots throughout; common fine pores; strongly acid; clear smooth boundary.

E—9 to 14 inches; yellowish brown (10YR 5/4), very fine sandy loam; weak coarse subangular blocky structure; very friable, soft; many medium roots throughout; common fine tubular pores; 2 percent fine spherical ironstone nodules; strongly acid; gradual smooth boundary.

E/Bt—14 to 19 inches; 50 percent light yellowish brown (10YR 6/4) and 45 percent reddish yellow (7.5YR 6/6), very fine sandy loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; friable, soft; many fine roots throughout; many fine and medium tubular pores; 10 percent faint brownish yellow (10YR 6/8) clay films on vertical faces of peds; 3 percent fine and medium prominent strong brown (7.5YR 5/6) masses of oxidized iron in matrix surrounding redox concentrations with clear boundaries; 2 percent fine spherical ironstone nodules; strongly acid; gradual wavy boundary.

Bt/E1—19 to 27 inches; 60 percent reddish yellow (7.5YR 6/6) and 30 percent pale brown (10YR 6/3), loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; friable, slightly hard; many fine and medium roots between peds; many fine and medium tubular pores; 30 percent by volume albic tongues; 20 percent faint brownish yellow (10YR 6/8) clay films on faces of peds; 5 percent fine and medium prominent strong brown (7.5YR 5/6) masses of oxidized iron in matrix surrounding redox concentrations with clear boundaries; 3 percent fine spherical ironstone nodules; 2 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron in matrix with sharp boundaries; strongly acid; gradual wavy boundary.

Bt/E2—27 to 41 inches; 60 percent brownish yellow (10YR 6/6) and 15 percent pale brown (10YR 6/3), loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; friable, slightly hard; many fine and medium roots between peds; many fine and medium tubular pores; 15 percent by volume albic tongues; 20 percent faint brownish yellow (10YR 6/8) clay films on faces of peds; 10 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in matrix surrounding redox concentrations with clear boundaries; 5 percent fine prominent light brownish gray (10YR 6/2) iron depletions between peds with sharp boundaries; 5 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron in matrix with sharp boundaries; 3 percent fine spherical ironstone nodules; 2 percent fine and medium red (2.5YR 4/8) plinthite nodules; strongly acid; gradual wavy boundary.

Bt/Eg1—41 to 58 inches; 75 percent brownish yellow (10YR 6/6) and 15 percent pale brown (10YR 6/3), loam; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; firm, hard; common very fine roots in cracks; many fine and medium interstitial pores; 15 percent by volume albic tongues; 20 percent faint gray (10YR 6/1) and brownish yellow (10YR 6/8) clay films on vertical faces of peds; 5 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron on faces of peds with sharp boundaries; 3 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in matrix surrounding redox concentrations with clear boundaries; 2 percent fine prominent red (2.5YR 5/6) masses of oxidized iron in matrix surrounding redox concentrations with sharp boundaries; 2 percent fine spherical ironstone nodules; 2 percent fine and medium red (2.5YR 4/8)

plinthite nodules; 20 percent of the Bt part of the horizon is brittle; very strongly acid gradual wavy boundary.

Bt/Eg2—58 to 80 inches; 70 percent brownish yellow (10YR 6/6) and 15 percent pale brown (10YR 6/3), loam; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; firm, hard; common very fine roots in cracks; many coarse interstitial pores; 15 percent by volume albic tongues; 20 percent faint gray (10YR 6/1) and brownish yellow (10YR 6/8) clay films on vertical faces of peds; 8 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron on faces of peds with sharp boundaries; 5 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in matrix surrounding redox concentrations with clear boundaries; 4 percent fine and medium red (2.5YR 4/8) plinthite nodules; 3 percent fine prominent red (2.5YR 5/6) masses of oxidized iron in matrix surrounding redox concentrations with sharp boundaries; 2 percent fine spherical ironstone nodules; 20 percent of the Bt part of the horizon is brittle; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Reaction ranges from extremely acid to strongly acid throughout. The soil moisture is an udic soil moisture regime. The soil moisture control section is 8 to 24 inches. Mean annual soil temperature ranges from 69 to 72 degrees F. Depth to argillic horizon ranges from 27 to 38 inches. Depth to glossic horizon ranges from 24 to 36 inches. Depth to redox concentrations ranges from 9 to 18 inches. Depth to redox depletions ranges from 18 to 34 inches. Depth to fragipan ranges from 50 to 65 inches. Particle-size control section (weighted average) clay content ranges from 10 to 18 percent. Base saturation ranges from 15 to 25 percent. CEC to clay ratio ranges from 0.30 to 0.40.

The A horizon has hue of 10YR, value of 3 to 5, chroma of 2 to 4. Texture is very fine sandy loam.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 7, chroma of 3 or 4. Texture is very fine sandy loam or fine sandy loam. Redoximorphic features in shades of brown or yellow range from none to common.

The E part of the E/Bt horizon has hue of 7.5YR or 10YR, value of 6 or 7, chroma of 3 or 4. The Bt part has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 6 or 8. Texture is very fine sandy loam, fine sandy loam, or silt loam. Redoximorphic features in shades of brown and yellow range from 5 to 25 percent and are mostly in the Bt part. Redoximorphic features in shades of gray range from 0 to 2 percent are mostly in the E part.

The Bt part of the Bt/E horizon has hue of 7.5YR or 10YR, value of 5 to 7, chroma of 6 or 8. The E part has hue of 7.5YR or 10YR, value of 6 to 8, chroma of 3. Texture is fine sandy loam, very fine sandy loam, silt loam, or loam. Redoximorphic features in shades of red, yellow, or brown range from 5 to 25 percent and are mostly in the Bt part. Redoximorphic features in shades of gray and green range from 0 to 2 percent and are mostly in the E part. Plinthite ranges from 0 to 3 percent. Brittle material ranges from 20 to 45 percent.

The Bt/Eg horizon part of the Bt has hue of 7.5YR or 10YR, value of 5 to 7, chroma of 4 to 8. The Eg part has hue of 7.5YR or 10YR, value of 6 to 8, chroma of 1 to 3. Texture is fine sandy loam, very fine sandy loam, or loam. Redoximorphic features in shades of red, yellow, or brown range from 10 to 25 percent and are mostly in the Bt part. Redoximorphic features in shades of blue, green, and gray range from 1 to 5 percent and are mostly in the E part. Plinthite ranges from 0 to 3 percent. Brittle material ranges from 20 to 45 percent.

The Btx part of the Btx/Eg horizon, where present, has hue of 7.5YR or 10YR, value of 5 to 7, chroma of 4 to 8. The Eg part has hue of 7.5YR or 10YR, value of 7 or 8, chroma of 1 or 2. Textures are fine sandy loam, very fine sandy loam, loam, or

silt loam. Redoximorphic features in shades of red, yellow, or brown range from 10 to 25 percent and are mostly in the Bt part. Redoximorphic features in shades of blue, green, and gray range from 1 to 5 percent and are mostly in the E part. Plinthite ranges from 0 to 3 percent. Brittle material ranges from 60 to 85 percent.

Doucette Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Ridge on interfluve
Parent material: Sandy and loamy sediments of Pleistocene age
Geology: Willis Formation
Drainage class: Well drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 5 percent

Associated Soils

- Boykin soils have redder subsoil without plinthite.
- Pinetucky soils do not have an arenic epipedon.
- Shankler soils have a sandy surface thicker than 40 inches.

Taxonomic Classification

Loamy, siliceous, semiactive, thermic Arenic Plinthic Paleudults

Typical Pedon

Doucette loamy sand in an area of Doucette loamy sand, 1 to 5 percent slopes; located from the intersection of U.S. Highway 190 and U.S. Highway 69 in Woodville; 14.2 miles south on U.S. Highway 69 to Warren, 5.0 miles west on Farm Road 1943, 3.2 miles northwest on County Road 1450, and 50 feet south in woods. Jacks Creek North, Texas USGS Quadrangle; Latitude—30 degrees, 39 minutes, 37.30 seconds N., and Longitude—94 degrees, 32 minutes, 44.88 seconds W.

A—0 to 6 inches; brown (10YR 5/3), loamy sand; single grain; very friable, loose, nonsticky, nonplastic; 2 percent well rounded indurated ironstone nodules; moderately acid; clear smooth boundary.

E1—6 to 28 inches; very pale brown (10YR 7/4), loamy sand; single grain; very friable, loose, nonsticky, nonplastic; 2 percent rounded indurated ironstone nodules; strongly acid; clear wavy boundary.

E2—28 to 34 inches; very pale brown (10YR 7/4), loamy sand; 10 percent fine distinct brownish yellow (10YR 6/6) mottles; single grain; very friable, loose, nonsticky, nonplastic; 1 percent fine distinct yellowish brown (10YR 5/6); 3 percent rounded indurated ironstone nodules; strongly acid; clear wavy boundary.

Bt1—34 to 41 inches; yellowish brown (10YR 5/6), sandy clay loam; 1 percent medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm, hard, moderately sticky, moderately plastic; 5 percent rounded indurated ironstone nodules; very strongly acid; gradual wavy boundary.

Bt2—41 to 48 inches; brownish yellow (10YR 6/6), sandy clay loam; 10 percent medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; firm, hard, moderately sticky, moderately plastic;

5 percent rounded indurated ironstone nodules; very strongly acid; gradual wavy boundary.

Bt3—48 to 56 inches; brownish yellow (10YR 6/6), sandy clay loam; 10 percent medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm, hard, moderately sticky, moderately plastic; 1 percent distinct skeletons; 5 percent rounded indurated ironstone nodules; very strongly acid; gradual wavy boundary.

BC—56 to 80 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; 5 percent rounded indurated ironstone nodules; very strongly acid.

Range in Characteristics

Solum thickness is more than 60 inches. Depth to a horizon containing 5 to 20 percent plinthite ranges from 30 to 60 inches. Base saturation at 50 inches below the top of the Bt horizon ranges from 5 to 25 percent. Thickness of the combined A and E horizons ranges from 20 to 40 inches.

The A horizon has hue of 10YR, value 4 to 6, chroma 2 to 4. Texture is loamy sand. Reaction is moderately acid to strongly acid.

The E horizon has hue of 10YR, value of 5 to 7, chroma of 3 or 4. Texture is fine sand, loamy sand, or loamy fine sand. Reaction is moderately acid to strongly acid.

The Bt horizon has hue of 5YR to 10YR, value of 5 or 7, chroma of 4 to 8. Mottles in shades of red, yellow, and gray are in the lower part of most pedons. Texture is sandy clay loam. Ironstone fragments range from 0 to 5 percent by volume. Reaction is very strongly acid or strongly acid.

The BC horizon has hue of 5YR to 10YR, value of 5 to 7, chroma of 4 to 8. Mottles in shades of red, yellow, and gray are in the lower part of most pedons. Texture is sandy clay loam. Reaction is very strongly acid or strongly acid.

Estes Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: River valley on coastal plain
Landform: Flood plain
Parent material: Clayey alluvium of Holocene age
Geology: Flood plain
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 0 to 1 percent

Associated Soils

- Iulus soils are coarse-loamy soils and slightly higher.
- Ozias soils have reaction less than 5.0 in the surface layer.

Taxonomic Classification

Fine, smectitic, thermic Aeric Dystraquerts

Typical Pedon

Estes clay in an area of Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded; from the intersection of Farm Road 92 and Farm Road 1013 in Spurger, Texas, 4.2 miles east on Farm Road 1013, 2.6 miles south on Forest Lake Road, 1.5 miles southeast on forest road, 1.1 miles south and west on forest road, and 50 feet

west of road in forest. Spurger, Texas USGS Quadrangle; Latitude—30 degrees, 37 minutes, 20.10 seconds N., and Longitude—94 degrees, 5 minutes, 46.00 seconds W.

A—0 to 5 inches; brown (10YR 4/3), clay; strong fine and medium subangular blocky structure; extremely firm, extremely hard; very sticky, very plastic; many fine to coarse roots; common fine and medium interstitial and tubular pores; 5 percent grayish brown (10YR 5/2) masses of reduced iron; very strongly acid; clear smooth boundary.

Bw1—5 to 10 inches; light yellowish brown (10YR 6/4), clay; moderate medium prismatic structure parting to strong medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; many fine and medium roots; common fine interstitial and tubular pores; 30 percent pale brown (10YR 6/3) masses of reduced iron; very strongly acid; clear smooth boundary.

Bw2—10 to 27 inches; grayish brown (10YR 5/2), clay; moderate medium prismatic structure parting to strong medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; many fine and medium roots; common fine interstitial and tubular pores; 25 percent yellowish brown (10YR 5/8) masses of oxidized iron; extremely acid; gradual smooth boundary.

Bssg1—27 to 43 inches; grayish brown (10YR 5/2), clay; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common fine interstitial and tubular pores; 1 percent pressure faces; 20 percent strong brown (7.5YR 5/8) masses of oxidized iron; extremely acid; gradual smooth boundary.

Bssg2—43 to 65 inches; light brownish gray (10YR 6/2), clay; strong medium prismatic structure parting to strong fine and medium angular blocky; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common fine interstitial and tubular pores; 20 percent slickensides (pedogenic) and 20 percent pressure faces; 20 percent strong brown (7.5YR 5/8) masses of oxidized iron; extremely acid; gradual smooth boundary.

Bssg3—65 to 80 inches; light brownish gray (10YR 6/2), clay; moderate medium prismatic structure parting to strong medium angular blocky; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common fine interstitial and tubular pores; 20 percent slickensides (pedogenic) and 20 percent pressure faces; 15 percent yellowish brown (10YR 5/8) masses of oxidized iron; extremely acid.

Range in Characteristics

Solum thickness is more than 80 inches. The weighted average clay content of the particle-size control section ranges from 40 to 50 percent. This is a cyclic soil and undisturbed areas have gilgai microrelief with microhighs 6 to 10 inches higher than microlows. Distance from the center of the microhigh to the center of the microlow ranges from about 4 to 12 feet. Cracks more than 1/2-inch wide extend from the surface to a depth of more than 12 inches when the soil is dry. The cracks remain open for less than 90 cumulative days in most years. Slickensides begin at a depth of 18 to 40 inches and extend for more than 20 inches. The electrical conductivity ranges from 0 to 4 dS/m but it is typically less than 1.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is clay. Redoximorphic features in shades of brown and gray range from none to common. Reaction ranges from extremely acid to moderately acid.

The Bw horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or 4. Texture is clay. Redoximorphic features in shades of brown and gray range from few to many. Some pedons have a mixed matrix of these colors. Reaction is extremely acid or very strongly acid.

The Bg horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Texture is clay. Redoximorphic features in shades of brown, yellow, and gray range from few to many. Pressure surfaces and/or small slickensides range from none to few. Reaction is extremely acid or very strongly acid.

The Bssg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. Texture is clay. Redoximorphic features in shades of red, brown, yellow, and gray range from few to many. Some pedons have threads, masses, or crystals of gypsum and/or barite commonly below the control section. Pressure surfaces and slickensides range from common to many. Reaction is extremely acid or very strongly acid.

The BCg horizon, where present, has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2. Texture is sandy clay loam, silty clay loam, or clay loam. Redoximorphic features in shades of red, brown, and yellow range from few to many. Some pedons have a mixed matrix of these colors. Reaction ranges from extremely acid to moderately acid.

Evadale Series

MLRA: 152B—Western Gulf Coast Flatwoods
Landscape: Coastal plain
Landform: Flats
Parent material: Loamy eolian deposits over clayey fluviomarine deposits of late Pleistocene age
Geology: Lissie Formation
Drainage class: Poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 0 to 1 percent

Associated Soils

- Caneyhead soils are very poorly drained and have a glossic horizon extending to 80 inches.
- Plank soils have a coarse-silty particle-size control section.
- Sorter soils have a coarse-loamy particle-size control section.

Taxonomic Classification

Fine-silty, siliceous, active, thermic Typic Glossaqualfs

Typical Pedon

Evadale silt loam (fig. 20) in an area of Evadale silt loam, 0 to 1 percent slopes; located in Newton County, Texas, from the intersection of Texas Highway 12 and Texas Highway 87, 4.9 miles north to Newton County Landfill Road, 0.6 mile west on landfill road to forest road, 0.25 mile south on forest road to pipeline, 0.1 mile southwest on pipeline, and 100 feet south east in forest. Hartburg, Texas USGS Quadrangle; Latitude—30 degrees, 20 minutes, 7.20 seconds N., and Longitude—93 degrees, 49 minutes, 1.20 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2), silt loam; weak fine subangular blocky structure; very friable, slightly hard; common coarse roots and common very fine to medium roots; common interstitial and common fine vesicular and tubular and common very fine vesicular and tubular pores; 1 percent by volume krotovinas; 3 percent fine brown (7.5YR 4/3) iron-manganese masses lining pores with clear boundaries; strongly acid; clear smooth boundary.

Eg—3 to 7 inches; grayish brown (10YR 5/2), silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable, slightly hard; common coarse roots and common very fine to medium roots; common fine tubular and common medium tubular and common very fine tubular pores; 10 percent by volume krotovinas; 5 percent fine prominent strong brown (7.5YR 4/6) masses of oxidized iron lining pores with sharp boundaries; very strongly acid; clear smooth boundary.

Eg/Btg—7 to 15 inches; 35 percent gray (10YR 6/1) and light brownish gray (10YR 6/2), silt loam; weak medium prismatic structure parting to weak medium subangular blocky; friable, slightly hard; common very fine and fine

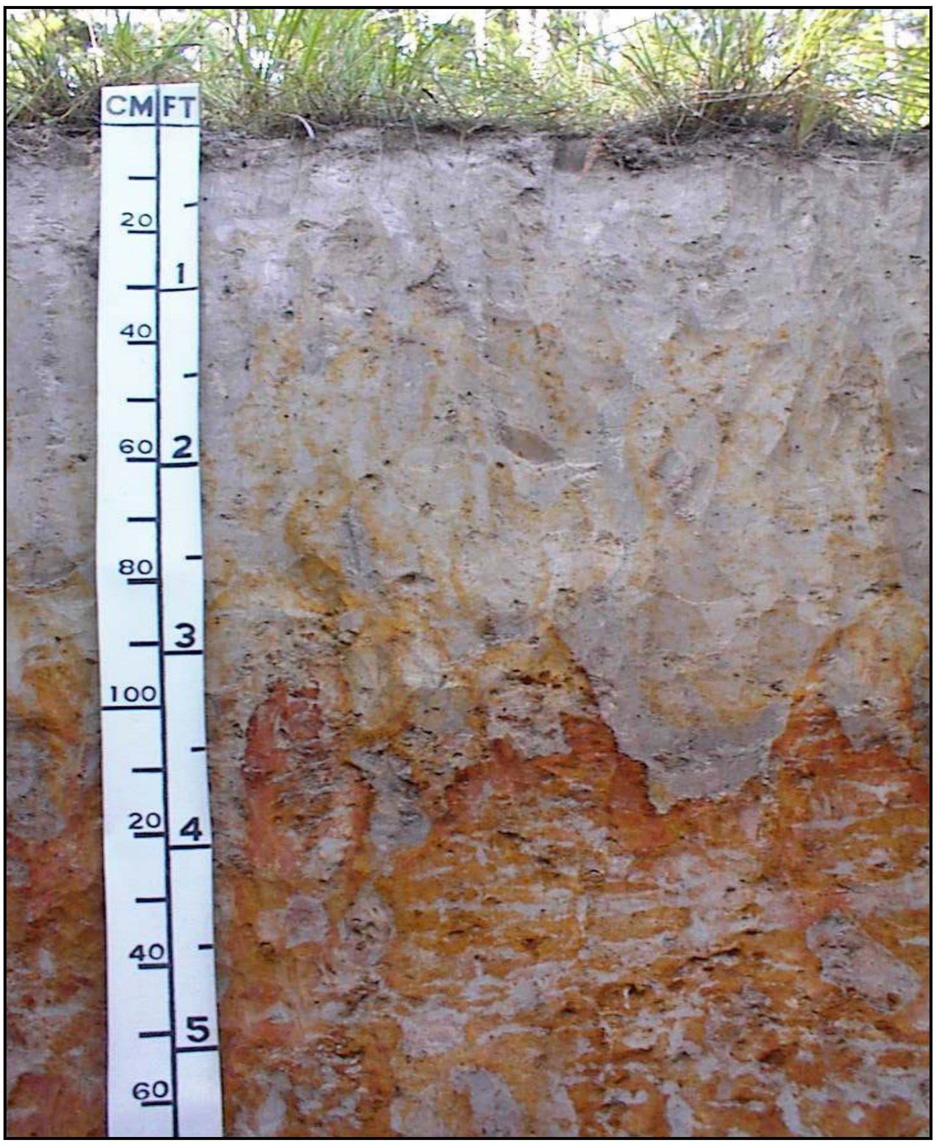

Figure 20.—Profile of Evadale silt loam, 0 to 1 percent slopes. The light gray material is loess that was deposited on the red clayey material.

roots and common medium roots; common fine tubular and common very fine tubular pores; 35 percent by volume albic tongues; 10 percent by volume krotovinas; 15 percent prominent light brownish gray (10YR 6/2) clay films; 12 percent medium and coarse prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 8 percent fine and medium prominent strong brown (7.5YR 4/6) masses of oxidized iron on faces of peds with clear boundaries; 2 percent fine prominent yellowish red (5YR 4/6) masses of oxidized iron lining pores with sharp boundaries; very strongly acid; clear smooth boundary.

Btg1—15 to 33 inches; 30 percent gray (10YR 5/1) and dark gray (10YR 4/1), silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, moderately hard; common fine roots and common very fine and fine roots; common fine tubular and common very fine tubular pores; 25 percent by volume albic tongues; 10 percent by volume krotovinas; 25 percent distinct gray (10YR 5/1) and dark gray (10YR 4/1) clay films; 8 percent medium and coarse prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with clear boundaries; 5 percent medium and coarse prominent reddish yellow (7.5YR 6/8) masses of oxidized iron on faces of peds with diffuse boundaries; 2 percent fine prominent red (2.5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 5 percent light gray (10YR 7/2) tongues of albic material of silt loam texture at center of gray (10YR 5/1) matrix; very strongly acid; clear smooth boundary.

Btg2—33 to 47 inches; gray (10YR 5/1), silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, very hard; few fine roots and common very fine roots; few fine tubular and few very fine tubular pores; 1 percent by volume albic tongues; 5 percent by volume krotovinas; 3 percent prominent gray (10YR 6/1) pressure faces and 25 percent distinct gray (10YR 5/1) clay films; 8 percent medium and coarse prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 3 percent fine and medium prominent red (2.5YR 4/8) masses of oxidized iron on faces of peds with clear boundaries; 3 percent fine and medium prominent reddish yellow (7.5YR 6/8) masses of oxidized iron on faces of peds with diffuse boundaries; very strongly acid; clear smooth boundary.

Btg3—43 to 57 inches; grayish brown (2.5Y 5/2), silty clay; moderate medium and coarse prismatic structure parting to moderate medium and coarse subangular blocky; very firm, very hard; few very fine and fine roots; few fine tubular and few very fine tubular pores; 3 percent by volume krotovinas; 3 percent distinct light brownish gray (2.5Y 6/2) and grayish brown (2.5Y 5/2) pressure faces and 3 percent distinct white (10YR 8/1) silt coats on vertical faces of peds and 25 percent distinct light brownish gray (2.5Y 6/2) clay films; 3 percent fine and medium prominent yellowish red (5YR 5/8) masses of oxidized iron lining pores with sharp boundaries; 3 percent medium and coarse prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 2 percent fine and medium prominent reddish yellow (7.5YR 6/8) masses of oxidized iron on faces of peds with clear boundaries; strongly acid; gradual wavy boundary.

Btg4—57 to 70 inches; light brownish gray (2.5Y 6/2), clay; weak very coarse prismatic structure parting to weak coarse and very coarse subangular blocky; very firm, very hard; few fine roots and common very fine roots; few very fine tubular pores; 1 percent by volume krotovinas; 5 percent fine and medium prominent strong brown (7.5YR 5/6) and 3 percent medium and coarse prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; moderately acid; gradual wavy boundary.

Btg5—70 to 80 inches; light brownish gray (2.5Y 6/2), silty clay; moderate very coarse prismatic structure parting to moderate coarse and very coarse subangular blocky; very firm, very hard; few very fine tubular pores; 1 percent by volume krotovinas; 3 percent faint light olive gray (5Y 6/2) pressure faces and 5 percent distinct white (10YR 8/1) silt coats on vertical faces of peds and 25 percent distinct light brownish gray (2.5Y 6/2) clay films; 10 percent medium and coarse prominent strong brown (7.5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; 2 percent medium prominent black (7.5YR 2.5/1) manganese masses on faces of peds with sharp boundaries; 2 percent medium prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with sharp boundaries; moderately acid.

Range in Characteristics

Solum thickness is more than 80 inches thick. This soil moisture is an udic soil moisture regime. The soil moisture control section is 4 to 12 inches below the soil surface and remains dry less than 90 cumulative days in most years. Mean annual soil temperature ranges from 68 to 70 degrees F. Depth to argillic horizon ranges from 8 to 23 inches. The particle-size control section (weighted average) clay content ranges from 25 to 35 percent and the CEC/clay ratio ranges from 0.40 to 0.60.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. Texture is silt loam. Clay content ranges from 5 to 12 percent. Crawfish bioturbation ranges from 2 to 10 percent. Sodium adsorption ratio ranges from 0 to 2. Reaction ranges from extremely acid or very strongly acid.

The Eg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Texture is loam, silt loam, and very fine sandy loam. Clay content ranges from 5 to 12 percent. Crawfish bioturbation range from 2 to 10 percent. Redoximorphic features in shades of brown and yellow range are common. Sodium adsorption ratio ranges from 0 to 2. Reaction ranges from extremely acid or very strongly acid.

The Eg/Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Texture is loam or silt loam. Clay content ranges from 8 to 18 percent. Crawfish bioturbation range from 5 to 25 percent. Redoximorphic features in shades of red, brown, and yellow range from common to many. Sodium adsorption ratio ranges from 0 to 4. Reaction ranges from extremely acid or very strongly acid.

The Btg/Eg, where present, horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is silt loam, clay loam, or silty clay loam. Clay content ranges from 25 to 40 percent. Crawfish bioturbation range from 5 to 25 percent. Redoximorphic features in shades of red, brown, and yellow range from common to many. Sodium adsorption ratio ranges from 2 to 8. Reaction ranges from extremely acid to strongly acid.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. Texture is clay loam, silty clay loam, clay, or silty clay. Clay content ranges from 30 to 45 percent. Crawfish bioturbation range from 5 to 15 percent. Redoximorphic features in shades of red, yellow, and brown range from common to many. Gypsum crystals range from 0 to 2 percent. Barite masses range from 0 to 2 percent. Sodium adsorption ratio ranges from 4 to 16. Reaction ranges from very strongly acid to moderately acid.

Hainesville Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Tread on stream terrace
Parent material: Sandy alluvium sediments of Pleistocene Age

Geology: Quaternary terraces
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent

Associated Soils

- Mollville soils have more wetness and are in lower positions.
- Sawlit soils have slightly more wetness.

Taxonomic Classification

Thermic, coated Lamellic Quartzipsamments

Typical Pedon

Hainesville loamy fine sand in an area of Hainesville loamy fine sand, 0 to 2 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 12.3 miles east on U.S. Highway 190, 7.0 miles north on Farm Road 92 to County Road 3725 to Temple-Inland entrance, 1.35 miles north and east on woodland road to hunting site #42 (D. Wersig), 60 feet north on hunter's trail, and 10 feet west in woods (entrance to site). Pace Hill, Texas USGS Quadrangle; Latitude—30 degrees, 56 minutes, 17.10 seconds N., and Longitude—94 degrees, 13 minutes, 54.60 seconds W.

A—0 to 2 inches; pale brown (10YR 6/3), loamy fine sand; 15 percent medium distinct yellowish brown (10YR 5/6) mottles; very friable, soft; nonsticky, nonplastic; moderately acid; clear smooth boundary.

Bw—2 to 7 inches; brown (10YR 5/3), loamy fine sand; weak fine subangular blocky structure; very friable, soft; nonsticky, nonplastic; moderately acid; gradual wavy boundary.

Bw/E1—7 to 22 inches; yellowish brown (10YR 5/6) and 20 percent very pale brown (10YR 7/3) loamy fine sand; 25 percent medium distinct yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; very friable, soft; nonsticky, nonplastic; lamellae; strongly acid; gradual wavy boundary.

Bw/E2—22 to 41 inches; brownish yellow (10YR 6/6) and 10 percent very pale brown (10YR 7/3) loamy fine sand; 20 percent medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; very friable, soft; nonsticky, nonplastic; lamellae; strongly acid; gradual wavy boundary.

Bw/E3—41 to 53 inches; yellowish brown (10YR 5/6) and 15 percent very pale brown (10YR 7/3) loamy fine sandy; 25 percent medium distinct dark yellowish brown (10YR 4/6) mottles; weak fine granular structure; very friable, soft; nonsticky, nonplastic; strongly acid; gradual wavy boundary.

Bw/E4—53 to 70 inches; light yellowish brown (10YR 6/4), 45 percent yellowish brown (10YR 5/6) and 10 percent very pale brown (10YR 7/3) loamy fine sand; weak medium subangular blocky structure; very friable, soft; nonsticky, nonplastic; strongly acid; gradual wavy boundary.

Bw'—70 to 80 inches; strong brown (7.5YR 5/6) loamy fine sand; weak medium subangular blocky structure; very friable, soft; nonsticky, nonplastic; lamellae; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Clay content in the control section ranges from 2 to 10 percent. Other distinctive soil features include lamellae which are

within a depth of 40 to 72 inches. These soils are dry in the moisture control section 60 to 90 cumulative days in most years. Concentrated minerals are rounded quartzite or ironstone pebbles which range from very few to about 3 percent in most pedons.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 3 or 4. Texture is fine sand or loamy fine sand. Reaction ranges from very strongly acid to slightly acid.

The E horizon, where present, has hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 3 or 4. Texture is fine sand or loamy fine sand. Reaction is very strongly acid to slightly acid.

The E/Bt or Bt/E horizon, where present, has hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 3 or 4 in the E parts; and hue of 5YR to 10YR, value of 5 to 7, and chroma of 6 or 8 in the Bt parts. Texture is fine sand or loamy fine sand. Reaction ranges from very strongly acid to slightly acid.

The Bw or Bw/E horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 3 to 8 in the Bw part and lamellae are in shades of brown or red. Texture is fine sand or loamy fine sand; lamellae have texture of loamy fine sand or fine sandy loam. The lamellae range from 0.1 to 2.5 centimeters thick and the cumulative thickness is less than 6 inches (15 centimeters). Reaction ranges from very strongly acid to slightly acid.

Hillister Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Side slope on interfluve
Parent material: Sandy and loamy sediments of Pleistocene Age
Geology: Willis Formation
Drainage class: Well drained
Slowest permeability: Moderately slow
Soil depth class: Deep to a bedrock (densic) layer
Shrink-swell potential: Low
Slope: 5 to 15 percent

Associated Soils

- Bonwier soils have clayey subsoil.
- Doucette soils have a solum greater than 60 inches.
- Shankler soils have a surface thicker than 40 inches.
- Stringtown soils do not have a sandy surface 20 inches thick.

Taxonomic Classification

Loamy, siliceous, active, thermic Arenic Hapludults

Typical Pedon

Hillister loamy sand in an area of Hillister loamy sand, 5 to 15 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 8.7 miles northwest on U.S. Highway 287, 4.7 miles west on woods road to intersection at hunters weigh-in station, 3.6 miles south and east on intersecting road, 0.3 mile north on pipeline, and 50 feet east in clear-cut area. Chambliss Hill, Texas USGS Quadrangle; Latitude—30 degrees, 49 minutes, 31.20 seconds N., and Longitude—94 degrees, 33 minutes, 31.70 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2), loamy sand; single grain; very friable, loose; many fine and medium roots and many coarse roots; moderately acid; clear smooth boundary.

E1—6 to 12 inches; light yellowish brown (10YR 6/4), loamy sand; 5 percent medium distinct dark grayish brown (10YR 4/2) and 1 percent fine faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; very friable, loose; many fine and medium roots; 5 percent rounded quartzite fragments; moderately acid; gradual wavy boundary.

E2—12 to 28 inches; light yellowish brown (10YR 6/4), loamy sand; weak medium subangular blocky structure; very friable, loose; many fine and medium roots; 15 percent rounded 0.1- to 0.8-inch quartzite fragments; moderately acid; clear smooth boundary.

Bt/E1—28 to 35 inches; yellowish red (5YR 5/6), sandy clay loam; 10 percent medium prominent light yellowish brown (10YR 6/4) and 10 percent medium distinct reddish brown (2.5YR 4/4) mottles; weak medium subangular blocky structure; friable, slightly hard; many medium roots between peds; 1 percent rounded 0.1- to 2.6-inch quartzite fragments; 10 percent pale brown (10YR 6/3) (E) material between ped faces; strongly acid; gradual wavy boundary.

Bt/E2—35 to 50 inches; brownish yellow (10YR 6/6), sandy clay loam; 10 percent medium prominent dark reddish brown (2.5YR 3/4) mottles; weak medium subangular blocky structure; friable, slightly hard; many medium roots between peds; 1 percent rounded 0.1- to 0.2-inch quartzite fragments; 25 percent pale brown (10YR 6/3) (E) material between ped faces; strongly acid; gradual wavy boundary.

C1—50 to 63 inches; strong brown (7.5YR 5/8), red (2.5YR 5/8), and light gray (10YR 7/2), clay loam, weakly cemented; 10 percent medium distinct reddish brown (2.5YR 4/4) mottles; firm, hard; 3 percent distinct light gray (10YR 7/1) sand coats; 1 percent rounded 0.1- to 0.2-inch quartzite fragments; red (2.5YR 5/8) and strong brown (7.5YR 5/8) materials above are sandstone, light gray (10YR 7/2) material above is shale; very strongly acid; gradual wavy boundary.

C2—63 to 80 inches; dark reddish brown (2.5YR 3/4), strong brown (7.5YR 5/8), light brownish gray (10YR 6/2), and light reddish brown (2.5YR 6/4), clay loam, weakly cemented; firm, hard; 1 percent rounded 0.1- to 0.2-inch quartzite fragments; light brownish gray (10YR 6/2) material above is shale; reddish brown (2.5YR 6/4), dark reddish brown (2.5YR 3/4), and strong brown (7.5YR 5/8) materials above are sandstone; very strongly acid.

Range in Characteristics

Solum thickness ranges from 40 to 60 inches. Weighted average clay content of the particle-size control ranges from 23 to 35 percent. Quartzite and ironstone pebbles range from 0 to 14 percent by volume throughout. Combined thickness of the A and E horizons ranges from 20 to 40 inches.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Texture is loamy fine sand. Reaction ranges from very strongly acid to moderately acid.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 8, and chroma of 2 to 4. Some pedons have EB horizons with chroma of 6 or 8. Texture is loamy fine sand. Reaction ranges from very strongly acid to moderately acid.

The Bt/E horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 or 8. Some pedons are mixed with these colors as well as red redox concretions with hue 2.5YR. Texture is fine sandy loam, sandy clay loam, or commonly clay loam. Relict redox depletions or remnants of weathered shale range from 0 to 5 percent by

volume. Some pedons have mica flakes in the lower part. Reaction ranges from extremely acid to strongly acid.

The BCt horizon, where present, is variegated in shades of red, brown, yellow, and commonly has redoximorphic features or is stratified with these colors. Discontinuous strata or pockets of gray weathered shale range from none to 15 percent by volume. Texture is fine sandy loam or sandy clay loam with or without strata of shale or sandstone. Most pedons contain few to common mica flakes. Reaction ranges from extremely acid to strongly acid.

The C or Cd horizon is stratified weakly consolidated sandstone with fine sandy loam or sandy clay loam texture and shale materials. The loamy materials and sandstone are in shades of red, yellow, or brown. The shale materials are mainly gray with a clay loam or clay texture. The amount of shaly material is variable and is absent in some pedons. Roots penetrate these materials but are concentrated along fractures or cleavage planes. The material slakes in water. Most pedons have clay flows along some vertical fractures. Many pedons have discontinuous, fractured, strongly cemented, or indurated sandstone or ironstone layers about 1 inch to 4 inches thick. They appear to have the slope of an ancient surface gradient and are also within the argillic horizon of some pedons. The reaction ranges from extremely acid to strongly acid.

Iulus Series

MLRA: 133B—Western Coastal Plain and 152B—Western Gulf Coast Flatwoods
Local physiographic area: East Texas Timberlands
Landscape: River valley on coastal plain
Landform: Riser on natural levee
Parent material: Loamy alluvium of Holocene age
Geology: Holocene alluvium
Drainage class: Moderately well drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Estes soils are clayey throughout.

Taxonomic Classification

Coarse-loamy, siliceous, active, thermic Fluvaquentic Dystrudepts

Typical Pedon

Iulus fine sandy loam in an area of Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded; from the intersection of Farm Road 1943 and Farm Road 92 in Fred, 10.2 miles west on Farm Road 1943, 4.1 miles south on county road, 0.5 miles west on county road, 600 feet south on forest trail, and 150 feet east of trail in forest. Hicksbaugh, Texas USGS Quadrangle; Latitude—30 degrees, 32 minutes, 51.50 seconds N., and Longitude—94 degrees, 19 minutes, 54.10 seconds W.

A—0 to 3 inches; dark yellowish brown (10YR 4/4), fine sandy loam; weak medium subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; many fine and medium roots; common fine and medium interstitial and tubular pores; very strongly acid; abrupt smooth boundary.

Bw1—3 to 11 inches; yellowish brown (10YR 5/4), fine sandy loam; moderate medium subangular blocky structure; friable, slightly hard, nonsticky,

nonplastic; many fine and medium roots and common coarse roots; common medium interstitial and tubular pores; strongly acid; clear smooth boundary.

Bw2—11 to 23 inches; brown (7.5YR 5/4), fine sandy loam; weak medium subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common fine roots; common fine and medium interstitial and tubular pores; 1 percent fine light brownish gray (10YR 6/2) clay depletions; strongly acid; gradual smooth boundary.

Bw3—23 to 36 inches; brown (7.5YR 5/4), loam; moderate medium subangular blocky structure; firm, hard, nonsticky, nonplastic; common fine roots; common fine interstitial and tubular pores; 10 percent fine and medium pale brown (10YR 6/3) clay depletions; 5 percent fine light brownish gray (10YR 6/2) clay depletions; strongly acid; gradual smooth boundary.

Bw4—36 to 52 inches; strong brown (7.5YR 5/6), loam; moderate medium subangular blocky structure; firm, hard, nonsticky, nonplastic; common very fine and fine roots; common very fine interstitial and tubular pores; 10 percent fine and medium light gray (10YR 7/2) masses of oxidized iron; 5 percent fine reddish brown (5YR 5/4) iron-manganese concretions; 1 percent fine irregular black (N 2.5/) iron-manganese masses throughout; strongly acid; gradual smooth boundary.

Bg1—52 to 70 inches; light brownish gray (10YR 6/2), fine sandy loam; weak medium prismatic structure; firm, slightly hard, nonsticky, nonplastic; common very fine roots; common very fine interstitial and tubular pores; 25 percent fine and medium light gray (10YR 7/2) clay depletions; 10 percent fine and medium reddish brown (5YR 5/4) iron-manganese concretions; strongly acid; gradual smooth boundary.

Bg2—70 to 80 inches; light gray (10YR 7/2), fine sandy loam; weak medium prismatic structure; friable, slightly hard, nonsticky, nonplastic; common very fine roots; common very fine interstitial and tubular pores; 30 percent medium and coarse brown (7.5YR 5/4) masses of oxidized iron; 10 percent fine and medium yellowish brown (10YR 5/4) masses of oxidized iron; 3 percent fine spherical black (N 2.5/) iron-manganese masses throughout; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Thickness of the loamy alluvial sediments range from 7 to 14 feet. The weighted average clay content of the control section ranges from 10 to 18 percent. These soils are dry in some part in the moisture control section for more than 60 cumulative days in most years. Some pedons have a buried A horizon in or below the control section. The reaction ranges from extremely acid to moderately acid throughout.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Some pedons have a few fine redoximorphic features in shades of brown or gray. Texture is fine sandy loam, very fine sandy loam, or loam; however some pedons have a thin overwash layer that has texture of fine sand or loamy fine sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 8. Redoximorphic features in shades of red, yellow, brown, or gray range from few to many. Iron depletions are within a depth of 24 inches of the soil surface. Texture is fine sandy loam or loam in the upper part, but ranges to sandy clay loam in the lower part of some pedons, or it is stratified with these textures. Some pedons have thin subhorizons that are silt loam, very fine sandy loam, or loamy fine sand.

The Bg horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 2 or less. Redoximorphic features in shades of red, brown, yellow, or gray range from few to many. Some pedons have mixed redoximorphic features of these colors. The texture is fine sandy loam, very fine sandy loam, loam, silt loam, or sandy clay loam. Most pedons have more than one texture and some pedons have thin strata of loamy

fine sand. Horizons with more than 18 percent clay are common in the lower part or below the particle-size control section.

Jayhawker Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Coastal plain
Landform: Depression on flat
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Geology: Lisse Formation
Drainage class: Poorly drained
Slowest permeability: Very slow
Soil depth class: Deep to a fragipan layer
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Dallardsville soils are moderately well drained and are on mounds.
- Kountze soils are moderately well drained and are on ridges.
- Plank, Sorter, and Waller soils have higher base saturation and are on higher flats.

Taxonomic Classification

Coarse-silty, siliceous, active, thermic Typic Paleaquults

Typical Pedon

Jayhawker silt loam (fig. 21) in an area of Jayhawker silt loam, 0 to 1 percent slopes; located in Hardin County, Texas, from the intersection of Farm Road 1003 and Farm Road 943 in Honey Island, 1.5 miles northwest on Farm Road 943 to forest road, 0.1 mile north, 0.6 mile east, and 0.6 mile north on forest road, and 25 feet east in forest. Village Mills, Texas USGS Quadrangle; Latitude—30 degrees, 26 minutes, 32.00 seconds N., and Longitude—94 degrees, 24 minutes, 36.00 seconds W.

A—0 to 6 inches; grayish brown (10YR 5/2), silt loam; weak coarse subangular blocky structure; firm, hard; many very fine to medium roots at the top of horizon; many fine and medium pores; 20 percent by volume krotovinas; 2 percent fine prominent strong brown (7.5YR 5/8) and 2 percent fine prominent brown (7.5YR 4/4) masses of oxidized iron lining pores with sharp boundaries; 1 percent fine prominent reddish yellow (7.5YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 1 percent fine wormcasts; very strongly acid; clear smooth boundary.

Eg—6 to 20 inches; light brownish gray (10YR 6/2), silt loam; moderate coarse prismatic structure parting to weak medium and coarse subangular blocky; friable, slightly hard; 20 percent by volume krotovinas; 12 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron on faces of peds with diffuse boundaries; 5 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron lining pores with clear boundaries; crayfish krotovinas filled with pinkish gray (7.5YR 7/2) very fine sand; very strongly acid; gradual wavy boundary.

Eg/Btg—20 to 36 inches; gray (10YR 6/1) and 30 percent gray (10YR 6/1), silt loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm, hard; many very fine roots throughout; common fine and medium pores; 15 percent by volume krotovinas; 15 percent fine and

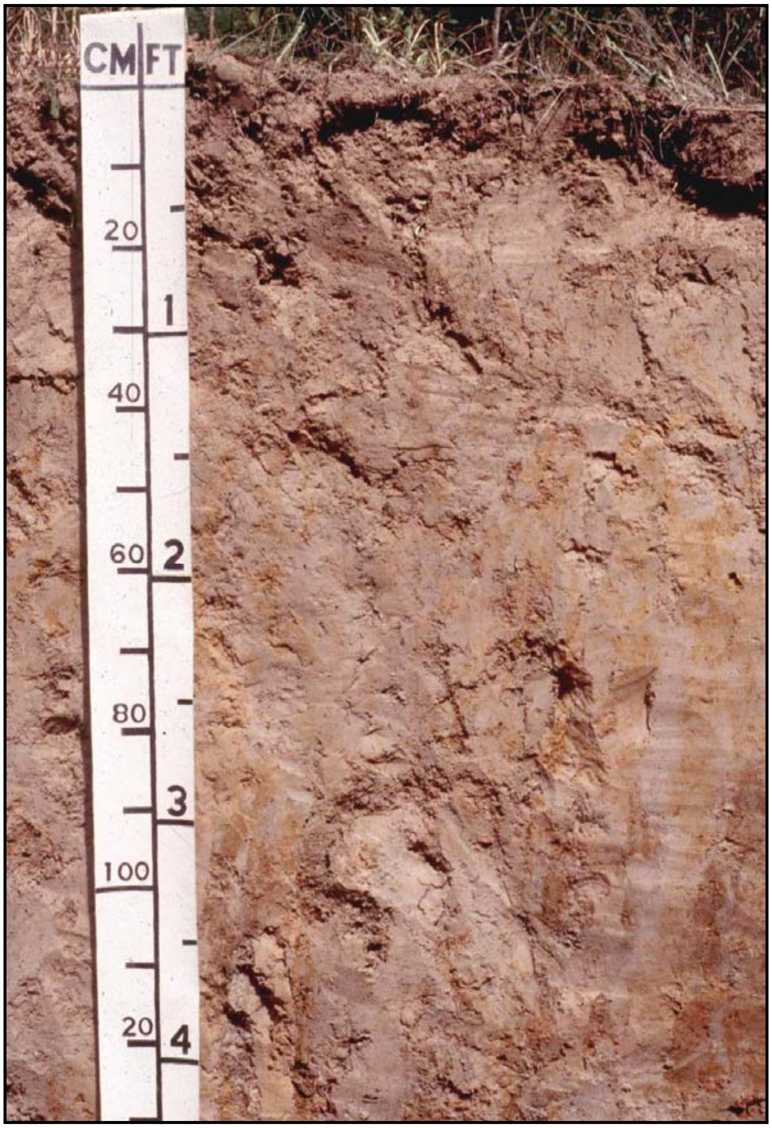

Figure 21.—Profile of Jayhawker silt loam, 0 to 1 percent slopes.

medium prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 5 percent fine and medium prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 1 percent medium ironstone nodules; crayfish krotovinas filled with pinkish gray (7.5YR 7/2) very fine sand; extremely acid; diffuse irregular boundary.

Btg/Eg—36 to 69 inches; gray (10YR 6/1) and 30 percent pinkish gray (7.5YR 7/2), silt loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; very firm, very hard; common fine and medium roots between peds; common fine and many medium pores; 5 percent by volume albic tongues; 10 percent by volume krotovinas; 10 percent discontinuous faint light brownish gray (10YR 6/2) clay films on faces of peds and in pores; 18 percent fine and medium prominent brownish yellow (10YR 6/8) masses of oxidized iron on faces of peds with clear boundaries; 12 percent fine and medium prominent yellowish red (5YR 5/8) masses of

oxidized iron on faces of peds with sharp boundaries; 10 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron in matrix with diffuse boundaries; Eg is albic material 1 centimeter to 5 centimeters wide and is a clay depletion resulting from aquic conditions; 40 percent of the total volume is brittle to very brittle; brittle material are coarse prisms 7.5 centimeters to 36 centimeters wide; extremely acid; clear wavy boundary.

Exg/Btxg—69 to 80 inches; 20 percent light brownish gray (10YR 6/2) (Exg) and light gray (10YR 7/1) (Btxg), silt loam; strong coarse prismatic structure;extremely firm, extremely hard; common very fine roots between peds; many medium and coarse pores; 1 percent by volume krotovinas; 5 percent continuous faint light brownish gray (10YR 6/2) clay films on horizontal faces of peds; 15 percent fine and medium prominent brownish yellow (10YR 6/8) masses of oxidized iron in matrix with diffuse boundaries; 2 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron in matrix with sharp boundaries; 2 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with sharp boundaries; Exg is albic material 2.5 centimeters to 10 centimeters wide with white (10YR 8/1) very fine sand in interior and is a clay depletion resulting from aquic conditions; 70 percent of the total volume is brittle to very brittle; very strongly acid.

Range in Characteristics

Depth to the fragipan ranges from 55 to 75 inches. Weighted average clay content of the particle-size control section is 8 to 15 percent and the sand content greater than very fine sand is 5 to 12 percent. Aluminum saturation ranges from 65 to 90 percent throughout. Exchangeable sodium percentage ranges from 0 to 4 percent. CEC to clay ranges from 0.50 to 0.60. Reaction is extremely acid or very strongly acid throughout.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2. Texture is silt loam. Crayfish bioturbation ranges from 15 to 50 percent. Redoximorphic features in shades of brown and yellow are common.

The Eg horizon has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 2. Texture is very fine sandy loam or silt loam. Crayfish bioturbation ranges from 15 to 50 percent. Redoximorphic features in shades of red, brown, and yellow are common.

The Eg part of the Eg/Btg horizon has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 1 or 2. The Btg part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is very fine sandy loam or silt loam. Crayfish bioturbation ranges from 10 to 40 percent. Redoximorphic features in shades of red, brown, and yellow range common to many.

The Btg part of the Btg/Eg horizons has hue of 10YR, 2.5Y, or N/, value of 6, and chroma of 1 or 2. The Eg part has hue of 7.5YR, value of 7, and chroma of 2 or 3. Texture is very fine sandy loam or silt loam. Crayfish bioturbation ranges from 1 to 25 common to many.

The Exg part of the Exg/Btxg horizon has hue of 10YR or 7.5YR, value of 7 or 8, and chroma of 1 or 2. The Btxg part has hue of 10YR, 2.5Y, or N/, value of 6, chroma of 1 or 2. Texture is very fine sandy loam or silt loam. Redoximorphic features in shades of red, brown, yellow, gray, green, and blue range from few to many. Brittle material ranges from 60 to 80 percent and is slightly to very brittle.

Kenefick Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods

Landscape: River valley on coastal plain
Landform: Riser on terrace
Parent material: Loamy alluvium of late Pleistocene age
Geology: Deweyville Formation
Drainage class: Well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 3 percent

Associated Soils

- Caneyhead soils are Glossaqualfs and are on lower landscape positions.
- Belrose soils have a coarse-loamy particle-size control section and are on similar landscape positions.
- Votaw soils are sandy throughout and are on similar landscape positions.

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Ultic Hapludalfs

Typical Pedon

Kenefick fine sandy loam in an area of Kenefick-Caneyhead complex, 0 to 1 percent slopes; located in Hardin County, Texas, from the intersection of U.S. Highway 96 and Texas Highway 327 in Silsbee, 3.3 miles south on U.S. Highway 96 to intersection with county road, 0.5 mile east on county road to forest road, 2.5 miles east on forest road, and 200 feet east of road on ridge. Silsbee, Texas USGS Quadrangle; Latitude—30 degrees, 17 minutes, 46.00 seconds N., and Longitude—94 degrees, 8 minutes, 25.00 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2), fine sandy loam; moderate medium granular structure; very friable, soft; many very fine and fine roots; common fine interstitial pores; strongly acid; clear smooth boundary.

E—4 to 20 inches; light yellowish brown (10YR 6/4), fine sandy loam; weak medium prismatic structure parting to moderate medium subangular blocky; very friable, soft; common very fine and fine roots; common very fine interstitial pores; strongly acid; clear smooth boundary.

B/E—20 to 26 inches; 65 percent yellowish red (5YR 5/6) and 35 percent light yellowish brown (10YR 6/4), fine sandy loam; weak medium prismatic structure parting to moderate medium subangular blocky; very friable, soft; common very fine roots; common very fine tubular pores; moderately acid; clear smooth boundary.

Bt1—26 to 33 inches; yellowish red (5YR 5/6), loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable, slightly hard; common very fine roots; common very fine tubular pores; 20 percent distinct yellowish red (5YR 4/6) clay films; moderately acid; gradual smooth boundary.

Bt2—33 to 52 inches; yellowish red (5YR 5/6), clay loam; moderate medium subangular blocky structure; firm, hard; few very fine roots; 20 percent distinct yellowish red (5YR 4/6) clay films; moderately acid; gradual smooth boundary.

Bt3—52 to 60 inches; yellowish red (5YR 5/8), sandy clay loam; weak coarse subangular blocky structure; firm, hard; few very fine roots; 25 percent distinct yellowish red (5YR 4/6) clay films; very strongly acid; clear smooth boundary.

Bt4—60 to 80 inches; pink (7.5YR 7/4), fine sandy loam; weak coarse subangular blocky structure; friable, slightly hard; 15 percent distinct yellowish red (5YR 4/6) clay films; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content ranges from 20 to 34 percent in the particle-size control section, and decreases by 20 percent or more from the maximum within 60 inches of the soil surface. Base saturation ranges from 38 to 55 percent at 50 inches below the top of the argillic horizon. CEC to clay ratio ranges from 0.45 to 0.55 in the particle-size control section.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. Thickness of the A horizon is less than 7 inches where the value and chroma are less than 4. Texture is very fine sandy loam or fine sandy loam. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is loamy fine sand or fine sandy loam. Reaction ranges from very strongly acid to slightly acid.

The EB horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. Texture is loamy fine sand or fine sandy loam. Reaction ranges from very strongly acid to slightly acid.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 or 8. Texture is loam, sandy clay loam, or clay loam. Iron-manganese concretions, less than 1 centimeter in diameter, and range from 0 to 2 percent. Redoximorphic features in shades of red, brown, and yellow range from none to common. Reaction ranges from very strongly acid to slightly acid.

The lower part of the Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 or 8. Texture is fine sandy loam, loam, or sandy clay loam. Siliceous or ironstone pebbles range from none to about 5 percent. Redoximorphic features in shades of red, brown, and yellow range from none to common. Clean sand ranges from none up to 5 percent. Some pedons contain up to 2 percent plinthite nodules. Iron-manganese, concretions less than 1 centimeter in diameter range from 0 to 2 percent. Reaction ranges from very strongly acid to slightly acid.

The BC horizon, where present, has stratified layers of sand, loamy fine sand, fine sandy loam, or very fine sandy loam in various shades of red, brown, or yellow, in hue of 2.5YR to 10YR, value of 5 to 7, and chroma of 3 to 8. Thin strata of loam, sandy clay loam, or clay loam are in a sandy matrix of some pedons. Siliceous pebbles range from 0 to 15 percent. Iron-manganese concretions, less than 1 centimeter in diameter, and range from 0 to 2 percent. Redoximorphic features in shades of red, brown, yellow, and gray range from none to common. Reaction is very strongly acid or strongly acid.

Kirbyville Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Rise on flat
Parent material: Loamy mid-Pleistocene age sediments
Geology: Lisse Formation
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent

Associated Soils

- Kountze soils have a coarse-loamy control section.
- Otanya soils do not have a glossic horizon and are well drained.
- Sorter soils are on lower landscape positions and are poorly drained.
- Waller soils are on lower landscape positions and are poorly drained.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Oxyaquic Paleudults

Typical Pedon

Kirbyville fine sandy loam (fig. 22) in an area of Kirbyville fine sandy loam, 0 to 2 percent slopes; located from the intersection of U.S. Highway 69 and Farm Road 2827 near Warren, 5.1 miles west on Farm Road 2827 to pavement end, 1.4 miles west on county road, 1.3 miles south on forest road, 1.9 miles east on forest road, 0.3 mile south on forest road, and 75 feet east of road to site. Jacks Creek South, Texas USGS Quadrangle; Latitude—30 degrees, 31 minutes, 58.50 seconds N., and Longitude—94 degrees, 28 minutes, 5.60 seconds W.

A—0 to 6 inches; dark grayish brown (10YR 4/2), very fine sandy loam; moderate fine and medium subangular blocky structure; many very fine roots throughout; 2 percent fine prominent strong brown (7.5YR 5/8) masses of oxidized iron lining pores with diffuse boundaries; moderately acid; clear smooth boundary.

E1—6 to 13 inches; 50 percent light yellowish brown (10YR 6/4) and 50 percent brown (10YR 5/3), fine sandy loam; weak very coarse prismatic structure; many medium roots throughout; strongly acid; clear smooth boundary.

E2—13 to 19 inches; brownish yellow (10YR 6/6), fine sandy loam; weak medium and coarse subangular blocky structure; many medium roots throughout; strongly acid; clear smooth boundary.

Bt/E1—19 to 24 inches; brownish yellow (10YR 6/6), loam; moderate medium and coarse prismatic structure parting to moderate medium and coarse subangular blocky; many medium roots throughout; 15 percent by volume albic tongues; 30 percent pale brown (10YR 6/3) clay depletions; strongly acid; clear smooth boundary.

Bt/E2—24 to 36 inches; brownish yellow (10YR 6/8), loam; moderate medium and coarse prismatic structure parting to moderate medium and coarse subangular blocky; many medium roots throughout; 20 percent by volume albic tongues; 20 percent pale brown (10YR 6/3) clay depletions; 5 percent medium distinct iron-manganese masses infused into matrix adjacent to pores; strongly acid; gradual smooth boundary.

Bt/Eg—36 to 56 inches; yellowish brown (10YR 5/8), loam; moderate medium and coarse prismatic structure parting to moderate medium and coarse subangular blocky; many fine roots between peds and many medium roots between peds; 25 percent by volume albic tongues; 25 percent light gray (10YR 7/2) clay depletions; strongly acid; gradual smooth boundary.

Btv/Eg—56 to 68 inches; brownish yellow (10YR 6/8), sandy clay loam; moderate medium and coarse prismatic structure parting to moderate medium and coarse subangular blocky; many fine roots between peds and many medium roots between peds; 25 percent by volume albic tongues; 25 percent light gray (10YR 7/1) clay depletions; 6 percent medium irregular iron-manganese concretions; 1 percent fine faint grayish brown (10YR 5/2) wormcasts with clear boundaries; very strongly acid; gradual smooth boundary.

Figure 22.—Profile of Kirbyville sandy loam, 0 to 2 percent slopes. The vertical white areas are albic material (Eg horizon) that has been moved down into the profile.

B't/E'g—68 to 80 inches; brownish yellow (10YR 6/8), sandy clay loam; moderate medium and coarse subangular blocky structure; many fine roots between peds; 25 percent by volume albic tongues; 15 percent light gray (10YR 7/2) clay depletions; 15 percent gray (10YR 6/1) clay depletions; 3 percent fine iron-manganese nodules infused into matrix adjacent to pores with clear boundaries; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Soil moisture is in an udic moisture regime. The soil moisture control section is 8 to 24 inches. Mean annual soil temperature ranges from 67 to 72 degrees F. Depth to argillic horizon ranges from 15 to 25 inches. Depth to glossic horizon ranges from 8 to 15 inches. Depth to redox

concentrations ranges from 5 to 15 inches. Depth to redox depletions ranges from 15 to 24 inches. Depth to endosaturation ranges from 18 to 40 inches during late winter and early spring for 30 days or more. Particle-size control section (weighted average) clay content ranges from 18 to 25 percent. Base saturation ranges from 18 to 30 percent. CEC to clay ranges from 0.25 to 0.35. Plinthite ranges from 5 to 15 percent below 30 inches.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or 3. Texture is fine sandy loam or very fine sandy loam. Reaction is extremely acid or very strongly acid.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6. Texture is fine sandy loam, very fine sandy loam, or loam. Redoximorphic features in shades of brown range from none to common. Clean sand grains in shades of gray range from none to common. Reaction is extremely acid or very strongly acid.

The Bt/E horizon has (for the Bt part) hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8, the E part has hue of 10YR, value of 6 or 7, and chroma of 2 or 3. Texture is loam, sandy clay loam, or clay loam. Redoximorphic features in shades of red, brown, yellow, and gray range from none to common. Reaction is very strongly acid or strongly acid.

The Btv/Eg horizon has (for the Btv part) hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. The E part has hue of 10YR, value of 6 or 7, and chroma of 2 or 3. Texture is loam, sandy clay loam, or clay loam. Redoximorphic features in shades of red, brown, yellow, and gray range from few to many. Reaction is very strongly acid or strongly acid.

Kitterll Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberland
Landscape: Inland dissected coastal plain
Landform: Shoulder or side slope on ridge
Parent material: Beds of tuffaceous sandstone, siltstone, ash, and pyroclastic materials
Geology: Catahoula Formation
Drainage class: Well drained
Slowest permeability: Moderate
Soil depth class: Very shallow to bedrock (paralithic) layer
Shrink-swell potential: Low
Slope: 2 to 35 percent

Associated Soils

- Browndell soils have clayey subsoils and are slightly deeper.
- Corrigan soils have clayey subsoils and are moderately deep.
- Kisatchie soils have clayey subsoils and are moderately deep.
- Rayburn soils have clayey subsoils and are deep.

Taxonomic Classification

Loamy, siliceous, active, nonacid, thermic, shallow Typic Udorthents

Typical Pedon

Kitterll loamy sand in an area of Browndell-Kitterll complex, 2 to 5 percent slopes; located from the intersection of U.S. Highway 190 and U.S. Highway 69 in Woodville; 17.7 miles north on U.S. Highway 69 to the Rockland community, 2.3 miles in a northeasterly direction on Farm Road 1014 and continuing onto County Road 3381,

0.6 mile north on woods road, and 50 feet north of road curve in woods. Boykin Spring, Texas USGS Quadrangle; Latitude—31 degrees, 1 minute, 48.90 seconds N., and Longitude—94 degrees, 21 minutes, 51.00 seconds W.

Ap—0 to 12 inches; pale brown (10YR 6/3), loamy sand; single grain; loose, slightly hard; very strongly acid; gradual wavy boundary.

C—12 to 14 inches; brownish yellow (10YR 6/6), loamy sand; 5 percent medium distinct strong brown (7.5YR 5/6) and 5 percent medium distinct dark yellowish brown (10YR 4/6) and 5 percent medium distinct pale brown (10YR 6/3) mottles; single grain; loose, slightly hard; 10 percent flat subrounded moderately to weakly cemented, 0.4- to 1.2-inch sandstone fragments; very strongly acid; abrupt wavy boundary.

Cr—14 to 20 inches; 25 percent pale brown (10YR 6/3), 25 percent light yellowish brown (2.5Y 6/3), 25 percent strong brown (7.5YR 5/6), and 25 percent dark yellowish brown (10YR 4/6) strongly cemented tuffaceous sandstone; very strongly acid.

Range in Characteristics

Solum thickness ranges from 4 to 14 inches. Reaction ranges from strongly to slightly acid throughout.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or 3. Texture is loamy sand or fine sandy loam.

The AC or C horizon has hue of 10YR, value of 4 to 6, and chroma of 4 to 6. Texture is loamy sand.

The Cr horizon has hue of 7.5YR or 2.5Y, value of 4 to 6, chroma of 2 to 6 and ranges from strongly to weakly cemented tuffaceous siltstone, mudstone, or sandstone. Reaction in the upper part ranges from strongly acid to neutral.

Kountze Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Inland dissected coastal plain
Landform: Broad ridge
Parent material: Loamy mid-Pleistocene age sediments
Geology: Lisse Formation
Drainage class: Moderately well drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 2 percent

Associated Soils

- Kirbyville soils have a fine-loamy control section.
- Plank soils are poorly drained and on lower positions.
- Sorter soils are poorly drained on intermounds positions.
- Waller soils are poorly drained on intermound positions.

Taxonomic Classification

Coarse-loamy, siliceous, active, thermic Oxyaquic Paleudults

Typical Pedon

Kountze very fine sandy loam (fig. 23) in an area of Kountze very fine sandy loam, 0 to 2 percent slopes; located in Hardin County, Texas, from the intersection of

Farm Road 1003 and Farm Road 943 in Honey Island, 10 miles west on Farm Road 943, and 200 feet north in forest. Village Mills, Texas USGS Quadrangle; Latitude—30 degrees, 30 minutes, 47.00 seconds N., and Longitude—94 degrees, 31 minutes, 53.00 seconds W.

A—0 to 6 inches; brown (10YR 4/3), very fine sandy loam; weak fine granular structure; very friable, soft; many very fine and fine roots and common medium roots and common coarse roots; many fine and medium interstitial pores; 2 percent fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron lining pores with clear boundaries; 1 percent fine wormcasts; strongly acid; clear smooth boundary.

Figure 23.—Profile of Kountze very fine sandy loam, 0 to 2 percent slopes. At a depth of 43 inches, nodules of plinthite appear in the profile.

E—6 to 17 inches; light yellowish brown (10YR 6/4), very fine sandy loam; weak coarse subangular blocky structure; friable, slightly hard; common very fine and fine roots and common medium and coarse roots; common fine tubular pores; 3 percent fine and medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron on faces of peds with clear boundaries; 2 percent fine ironstone nodules; 1 percent fine black (10YR 2/1) iron-manganese concretions; strongly acid; gradual smooth boundary.

E/Bt—17 to 25 inches; light yellowish brown (10YR 6/4) and 30 percent strong brown (7.5YR 5/8), very fine sandy loam; weak medium and coarse prismatic structure parting to weak medium subangular blocky structure; friable, slightly hard; common very fine and fine roots and common medium roots; common fine and medium tubular pores; 5 percent distinct reddish yellow (7.5YR 6/8) clay films; 3 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron in matrix with sharp boundaries; 2 percent fine and medium distinct light brownish gray (10YR 6/2) iron depletions in matrix with clear boundaries; 2 percent fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron lining pores with clear boundaries; 2 percent fine spherical ironstone nodules; 2 percent fine irregular black (10YR 2/1) iron-manganese concretions; iron depletions are in the E; very strongly acid; gradual smooth boundary.

Bt/E—25 to 43 inches; reddish yellow (7.5YR 6/6) and 30 percent pale brown (10YR 6/3), loam; moderate medium prismatic structure parting to weak fine and medium subangular blocky structure; friable, slightly hard; common very fine and fine roots; common fine and medium tubular pores; 10 percent distinct strong brown (7.5YR 5/8) clay films on faces of peds; 7 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron in matrix with clear boundaries; 3 percent fine spherical ironstone nodules; 2 percent fine and medium distinct light brownish gray (10YR 6/2) iron depletions in matrix with clear boundaries; 2 percent fine irregular black (10YR 2/1) iron-manganese concretions; iron depletions are in the E; very strongly acid; gradual wavy boundary.

Bt/Eg—43 to 54 inches; brownish yellow (10YR 6/6) and 25 percent gray (10YR 6/1), loam; moderate medium prismatic structure parting to weak fine and medium subangular blocky; friable, slightly hard; common very fine and fine roots; common fine and medium tubular pores; 15 percent distinct yellowish brown (10YR 5/6) clay films on surfaces along pores; 10 percent fine prominent light gray (10YR 7/1) iron depletions in matrix with clear boundaries; 6 percent fine faint yellowish brown (10YR 5/6) masses of oxidized iron in matrix with clear boundaries; 3 percent fine prominent red (2.5YR 5/8) masses of oxidized iron in matrix with sharp boundaries; 3 percent fine spherical ironstone nodules; 3 percent medium spherical red (2.5YR 5/8) plinthite nodules; 1 percent fine irregular black (10YR 2/1) iron-manganese concretions; iron depletions are in the Eg; very strongly acid; gradual wavy boundary.

Btv/Eg1—54 to 73 inches; brownish yellow (10YR 6/6) and 30 percent light gray (10YR 7/1), loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm, hard; common very fine roots; common fine and medium tubular pores; 15 percent distinct yellowish brown (10YR 5/6) clay films on surfaces along pores; 15 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron in matrix with clear boundaries; 8 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron in matrix with sharp boundaries; 8 percent medium spherical red (2.5YR 5/8) plinthite nodules; 4 percent fine spherical ironstone nodules; very strongly acid; gradual wavy boundary.

Btv/Eg2—73 to 80 inches; brownish yellow (10YR 6/6) and 40 percent light gray (10YR 7/1), silt loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm, hard; common very fine roots; common fine and medium tubular pores; 15 percent distinct brownish yellow (10YR 6/8) clay films on surfaces along pores; 12 percent fine distinct reddish yellow (7.5YR 6/8) masses of oxidized iron in matrix with clear boundaries; 8 percent medium spherical red (2.5YR 4/8) plinthite nodules; 2 percent fine prominent red (2.5YR 5/8) masses of oxidized iron in matrix with sharp boundaries; 10 percent brittle material; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The soil moisture control section is 8 to 24 inches. Mean annual soil temperature is 67 to 72 degrees F. Depth to argillic horizon is at a depth of 20 to 36 inches. Depth to redox concentrations ranges from 6 to 18 inches. Depth to redox depletions ranges from 12 to 20 inches. Depth to endosaturation ranges from 18 to 40 inches during late winter to early spring for 30 days or more. Particle-size control section (weighted average) clay content ranges from 10 to 16 percent. Base saturation ranges from 25 to 35. CEC to clay ranges from 0.40 to 0.55. Reaction is very strongly acid to strongly acid throughout.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is very fine sandy loam.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. Ironstone nodules range from 1 to 3 percent. Redoximorphic features in shades of brown are few to common.

E/Bt horizon has for the E part hue of 10YR, value of 5 to 7, and chroma of 3 or 4, the Bt part has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. Texture is very fine sandy loam, silt loam, or loam. Ironstone nodules range from 2 to 5 percent. Redoximorphic features in shades of red, brown, yellow, and gray are few to common.

The Bt/E horizon has for the Bt part hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8, the E part has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. Texture is very fine sandy loam, silt loam, or loam. Ironstone nodules range from 1 to 5 percent. Redoximorphic features in shades of red, brown, yellow, and gray range from few to common.

The Bt/Eg horizon has for the Bt part hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8, the E part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is very fine sandy loam, silt loam, or loam. Ironstone nodules range from 1 to 5 percent. Redoximorphic features in shades of red, brown, yellow, and gray are common. Plinthite ranges from 1 to 4 percent.

The Btv/Eg horizon has for the Btv part hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 4 or 8, the E part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is very fine sandy loam, silt loam, loam. Ironstone nodules range from 1 to 5 percent. Redoximorphic features in shades of red, brown, yellow, and gray area none to many. Plinthite ranges from 5 to 10 percent.

Koury Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Flood plain
Parent material: Loamy alluvium
Geology: Quaternary alluvium
Drainage class: Moderately well drained

Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Colita soils have an argillic horizon and are on uplands.
- Ozias soils are on similar positions on flood plains.
- Pophers soils are on similar positions on flood plains.

Taxonomic Classification

Coarse-silty, siliceous, superactive, thermic Oxyaquic Eutrudepts

Typical Pedon

Koury very fine sandy loam in an area of Koury very fine sandy loam, 0 to 1 percent slopes, frequently flooded; from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 14.8 miles northwest on U.S. Highway 287 to Chester, 5.25 miles north and east on Farm Road 1745, 2.25 miles northwest, north, and east on adjoining woods road, and 20 feet south in woods. Wolf Hill, Texas USGS Quadrangle; Latitude—31 degrees, 0 minutes, 25.50 seconds N., and Longitude—94 degrees, 31 minutes, 31.40 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3), very fine sandy loam; moderate medium subangular blocky structure; friable, slightly hard; very strongly acid; clear smooth boundary.

Bw1—5 to 13 inches; brown (10YR 5/3), loam; moderate medium subangular blocky structure; friable, slightly hard; very strongly acid; gradual wavy boundary.

Bw2—13 to 37 inches; brown (10YR 5/3), loam; moderate medium subangular blocky structure; friable, slightly hard; 20 percent faint dark grayish brown (10YR 4/2) silt coats; strongly acid; gradual wavy boundary.

Bg—37 to 46 inches; grayish brown (10YR 5/2), loam; moderate medium subangular blocky structure; friable, slightly hard; 2 percent faint pale brown (10YR 6/3) silt coats on vertical faces of peds and 5 percent faint organic stains; very strongly acid; clear smooth boundary.

Ab—46 to 53 inches; dark grayish brown (10YR 4/2), very fine sandy loam; weak medium subangular blocky structure; friable, slightly hard; very strongly acid; clear wavy boundary.

Bwb1—53 to 65 inches; brown (10YR 5/3), loam; moderate medium subangular blocky structure; friable, slightly hard; 5 percent faint dark yellowish brown (10YR 4/4) organic stains; 5 percent medium faint dark grayish brown (10YR 4/2) iron depletions; very strongly acid; gradual wavy boundary.

Bwb2—65 to 72 inches; pale brown (10YR 6/3), loam; weak medium subangular blocky structure; friable, slightly hard; 5 percent medium faint grayish brown (10YR 5/2) masses of reduced iron; strongly acid; gradual wavy boundary.

Bgb—72 to 80 inches; light brownish gray (10YR 6/2), very fine sandy loam; weak fine subangular blocky structure; friable, slightly hard; 5 percent medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content of the particle-size control section ranges from 10 to 17 percent clay. Aluminum saturation ranges from 50 to 85 percent in the upper 40 inches of the soil. Base saturation ranges from 60 to 80 percent in some subhorizon at a depth of 10 to 30 inches.

Redoximorphic features are considered both contemporary and relict. The matrix colors appear to be related to the parent materials of the watershed and are lithochromic. The soil does not have aquic soil conditions in most years. The subsoil has irregular organic carbon between about 13 and 52 inches.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4, or value of 6 with chroma of 3. Texture is very fine sandy loam. Reaction ranges from extremely acid to strongly acid. The electrical conductivity ranges from 0 to 2 mmhos/cm.

The Bw horizon has hue of 10YR, value of 4 to 6, and chroma of 3 or 4. Redoximorphic features, mainly masses, in shades of red, brown, yellow, or gray range from few to common. Texture is very fine sandy loam, loam, or silt loam. Some pedons have thin bedding planes of silty clay loam or clay loam. Reaction is extremely acid or very strongly acid. The electrical conductivity ranges from 0 to 2 mmhos/cm.

The Bg horizon has hue of 10YR with value of 5 to 7, and chroma of 1 or 2. Redoximorphic features, mainly masses, in shades of red, brown, yellow, or gray range from few to common. Texture is very fine sandy loam, loam, or silt loam. Some pedons have thin bedding planes of silty clay loam or clay loam. Reaction is extremely acid or very strongly acid. The electrical conductivity ranges from 0 to 2 mmhos/cm.

Buried Ab horizons with hue of 10YR, value of 3 or 4, and chroma of 1 or 2 are typically below a depth of 40 inches. Redoximorphic features in shades of red, brown, or yellow range from none to common. Texture is very fine sandy loam, loam, silt loam, or silty clay loam. Reaction is extremely acid or very strongly acid. The electrical conductivity ranges from 1 to 4 mmhos/cm.

The Bwb horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 3 or 4. Redoximorphic features, mainly masses, in shades of red, brown, yellow, or gray range from few to common. Texture is very fine sandy loam, loam, or silt loam. Some pedons have thin bedding planes of silty clay loam or clay loam. Reaction is extremely acid or very strongly acid. The electrical conductivity ranges from 0 to 2 mmhos/cm.

The Bgb horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Redoximorphic features, mainly masses, in shades of red, brown, yellow, or gray range from few to common. Texture is very fine sandy loam, loam, or silt loam. Some pedons have thin bedding planes of silty clay loam or clay loam. Reaction is extremely acid or very strongly acid. The electrical conductivity ranges from 0 to 2 mmhos/cm.

Laneville Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Flood plain
Parent material: Loamy and clayey alluvium
Geology: Quaternary alluvium
Drainage class: Moderately well drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 0 to 1 percent

Associated Soils

- Estes and Ozias soils are clayey throughout.
- Iulus soils are in a coarse-loamy family.

- Koury soils are grayer and in a coarse-silty family.
- Pophers soils are gray throughout.

Taxonomic Classification

Fine-silty, siliceous, active, thermic Fluvaquentic Eutrudepts

Typical Pedon

Laneville fine sandy loam in an area of Laneville fine sandy loam, 0 to 1 percent slopes, frequently flooded; from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 13.7 miles northwest on U.S. Highway 287, 0.9 mile southwest on County Road 2400, 0.5 mile north on power line R.O.W., and 150 feet east in flood plain. Chester, Texas USGS Quadrangle; Latitude—30 degrees, 54 minutes, 21.40 seconds N., and Longitude—94 degrees, 35 minutes, 43.90 seconds W.

Ap—0 to 4 inches; brown (10YR 4/3), fine sandy loam; weak medium subangular blocky structure; friable, soft; many fine and medium roots and few coarse roots; moderately acid; clear wavy boundary.

Bw1—4 to 13 inches; pale brown (10YR 6/3), fine sandy loam; moderate medium subangular blocky structure; friable, soft; common fine and medium roots; strongly acid; gradual wavy boundary.

Bw2—13 to 21 inches; very pale brown (10YR 7/3), fine sandy loam; moderate medium subangular blocky structure; friable, soft; common fine and medium roots; very strongly acid; clear wavy boundary.

Bw3—21 to 26 inches; brownish yellow (10YR 6/6), loam; moderate medium subangular blocky structure; friable, slightly hard; common fine and medium roots; 10 percent fine and medium distinct light brownish gray (10YR 6/2) masses of reduced iron; very strongly acid; gradual wavy boundary.

2Bgb1—26 to 38 inches; light brownish gray (10YR 6/2), clay loam; weak medium subangular blocky structure; firm, hard; common fine and medium roots; 10 percent medium distinct yellowish brown (10YR 5/6) and 5 percent medium distinct strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

2Bgb2—38 to 52 inches; light gray (10YR 7/1), clay; weak fine subangular blocky structure; very firm, very hard; few fine roots; 10 percent medium distinct strong brown (7.5YR 5/8) masses of oxidized iron; 5 percent medium distinct gray (5Y 5/1) masses of reduced iron; very strongly acid; gradual wavy boundary.

2Bgb3—52 to 80 inches; light gray (10YR 7/1), clay; weak fine subangular blocky structure; very firm, very hard; few fine roots; 2 percent medium distinct light yellowish brown (10YR 6/4) masses of oxidized iron; extremely acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content of the control section ranges from 25 to 35 percent. The base saturation is 60 percent or more in a subhorizon between 10 and 30 inches from the soil surface. By weight, less than 15 percent of the particles are fine sand or coarser. Rounded ironstone pebbles range from 0 to 5 percent. Iron-manganese concretions and masses typically range from few to 5 percent. Depth to a horizon containing more than 35 percent clay ranges from 30 to 50 inches. Some pedons have a buried A horizon at a depth of 30 to 60 inches.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. Redox concentrations in shades of red, yellow, or brown range from none to common. Texture is fine sandy loam. Reaction ranges from very strongly acid to slightly acid.

The Bw horizon has colors in hue of 7.5YR or 10YR, value of 4 to 8, and chroma of 3 to 8, or it is variegated with these colors. Redox depletions with chroma of 2 or less range from few to many. Some pedons have redox concentrations in shades of red. Texture is loam, silt loam, clay loam, or silty clay loam. Reaction ranges from extremely acid to strongly acid.

The Bg horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Redox concentrations range from few to many in shades of red, yellow, or brown. Texture is loam, clay loam, silt loam, or silty clay loam. Reaction ranges from extremely acid to moderately acid.

The 2Bg horizon has hue of 10YR, value of 4 to 8, and chroma of 1 or 2. Redox concentrations range from common to many in shades of red, brown, or yellow. Texture is clay loam, silty clay, or clay with clay content of 35 to 50 percent. Reaction ranges from extremely acid to moderately acid. Some pedons are slightly acid or neutral below a depth of 60 inches.

A 2BC horizon is present below a depth of 60 inches in some pedons. It has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Redox concentrations range from common to many in shades of red, brown, or yellow. Texture is clay loam, silty clay, or clay with clay content of 35 to 50 percent. Reaction ranges from extremely acid to neutral.

Laska Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Ridge on interfluve
Parent material: Loamy sediments
Geology: Catahoula Formation
Drainage class: Moderately well drained
Slowest permeability: Moderately rapid
Soil depth class: Very deep to bedrock (paralithic) layer
Shrink-swell potential: Low
Slope: 0 to 3 percent

Associated Soils

- Colita soils are generally on slightly higher positions.
- Rayburn soils have a clayey Bt horizon in shades of red.

Taxonomic Classification

Coarse-loamy, siliceous, semiactive, thermic Oxyaquic Glossudalfs

Typical Pedon

Laska fine sandy loam in an area of Laska fine sandy loam, 1 to 3 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 15.1 miles northwest on U.S. Highway 287 to the town of Chester, 4.75 miles north and east on Farm Road 1745, 2.1 miles northeast on woods road, 2.25 miles northeast on adjoining woods road, and 75 feet north of woods road. Wolf Hill, Texas USGS Quadrangle; Latitude—31 degrees, 0 minutes, 27.80 seconds N., and Longitude—94 degrees, 31 minutes, 43.70 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3), fine sandy loam; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

E—8 to 20 inches; pale brown (10YR 6/3), fine sandy loam; weak medium subangular blocky structure; friable; strongly acid; clear wavy boundary.

Bt/E1—20 to 38 inches; 75 percent yellowish brown (10YR 5/4) and 15 percent light brownish gray (10YR 6/2), loam; moderate medium subangular blocky structure; friable; 5 percent medium prominent strong brown (7.5YR 5/8) masses of oxidized iron; 5 percent medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; 15 percent light grayish brown (10YR 6/2) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

Bt/E2—38 to 48 inches; 30 percent yellowish brown (10YR 5/4), 30 percent light brownish gray (10YR 6/2), 25 percent very pale brown (10YR 7/3) and 15 percent red (2.5YR 4/8), loam; moderate medium subangular blocky structure; friable; 25 percent very pale brown (10YR 7/3) above is fine sandy loam (E) material; very strongly acid; abrupt wavy boundary.

2Bt/E—48 to 65 inches; 80 percent light brownish gray (10YR 6/2) and 10 percent very pale brown (10YR 7/3), clay loam; weak medium subangular blocky structure; firm; 10 percent medium prominent dark red (2.5YR 3/6) masses of oxidized iron; 10 percent very pale brown (10YR 7/3) above is fine sandy loam (E) material; very strongly acid; abrupt wavy boundary.

2Cd—65 to 80 inches; light brownish gray (10YR 6/2), silty clay loam noncemented; massive; firm; 5 percent faint grayish brown (10YR 5/2) masses of reduced iron on faces of peds; very strongly acid.

Range in Characteristics

Solum thickness is more than 60 inches. Quartzite pebbles range from 0 to 5 percent. The combined thickness of the epipedon ranges from 15 to 35 inches thick. The weighted average clay content in the control section ranges from 8 to 15 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Texture is fine sandy loam. Reaction ranges from strongly acid to slightly acid.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. Redoximorphic features in shades for brown, yellow, and gray range from few to many in the lower horizon. Texture is fine sandy loam. Reaction ranges from strongly acid or moderately acid.

The Bt horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 2 or 3. Texture is fine sandy loam. Redoximorphic features in shades of brown, yellow, and gray are few to many. Reaction is very strongly acid or strongly acid.

The Bt/E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Redox concentrations or masses range from few to common in shades of brown or yellow. Redox depletions range from none to common in shades of gray. Texture is fine sandy loam or loam. Albic materials make up 5 to 40 percent by volume. Reaction ranges from extremely acid to strongly acid.

The 2Bt/E horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 1 or 2. Redoximorphic features in shades of red, yellow, or brown range from few to many. Some pedons have a variegated matrix of these colors. The upper part of this horizon typically has about 2 to 10 percent intrusions of albic materials. Texture is fine sandy loam, sandy clay loam, clay loam, or sandy clay. Reaction ranges from extremely acid to strongly acid.

The 2Cd or 3Cr (where present) horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 to 6. Lithochromic mottles range from none to many in shades of brown, yellow, or gray. It is soft siltstone or sandstone.

Lelavale Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Depression

Parent material: Loamy fluviomarine deposits of early Pleistocene age
Geology: Lisse Formation
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Very high
Slope: 0 to 1 percent

Associated Soils

- Kirbyville soils are moderately well drained and are on higher positions.
- Kountze soils are moderately well drained and are on higher positions.
- Otanya soils are well drained and are on higher positions.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Typic Glossaqualfs

Typical Pedon

Lelavale silt loam in an area of Lelavale silt loam, 0 to 1 percent slopes, ponded; located in Hardin County, Texas; from the intersection of Farm Road 787 and Farm Road 2798 in Votaw, 2.0 miles north on Farm Road 943 to forest company road, 1.8 miles east on forest road, and 500 feet south in depression in woodland. Deserter Baygall, Texas USGS Quadrangle; Latitude—27 degrees, 29 minutes, 50.10 seconds N., and Longitude—94 degrees, 38 minutes, 39.70 seconds W.

Ag—0 to 4 inches; dark grayish brown (10YR 4/2), silt loam; massive; friable, slightly hard; common fine and medium roots and common coarse roots; common fine and medium tubular and common fine and medium interstitial pores; 3 percent fine distinct brown (7.5YR 4/3) masses of oxidized iron lining pores with diffuse boundaries; few crayfish krotovinas filled with grayish brown (10YR 5/2) silt loam; extremely acid; abrupt smooth boundary.

Eg—4 to 12 inches; grayish brown (10YR 5/2), silt loam; moderate medium subangular blocky structure; friable, slightly hard; common very fine and fine roots; common fine and medium tubular pores; 4 percent fine prominent yellow (10YR 7/6) masses of oxidized iron on faces of peds with diffuse boundaries; 3 percent fine distinct brown (7.5YR 4/3) iron-manganese masses lining pores with diffuse boundaries; 2 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; few crayfish krotovinas filled with grayish brown (10YR 5/2) silt loam; extremely acid; clear smooth boundary.

Btg/Eg1—12 to 16 inches; gray (10YR 6/1) and 35 percent light brownish gray (10YR 6/2), loam; weak coarse prismatic structure parting to weak coarse subangular blocky structure; firm, hard; common very fine and fine roots; common fine and medium tubular pores; 15 percent faint gray (10YR 6/1) clay films on faces of peds; 10 percent fine and medium prominent yellow (10YR 7/6) masses of oxidized iron on faces of peds with diffuse boundaries; 5 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; few crayfish krotovinas filled with gray (10YR6/1) silt loam; the Eg part of the horizon consists of albic material 1/4- to 1/2-inch wide and is a clay depletion because of aquic conditions; extremely acid; clear wavy boundary.

Btg/Eg2—16 to 31 inches; gray (10YR 6/1) and 20 percent light brownish gray (10YR 6/2), clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky structure; firm, hard; common very fine and fine roots; common fine tubular pores; 25 percent faint gray (10YR 6/1) clay films on

faces of peds; 20 percent medium and coarse prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 10 percent fine and medium prominent strong brown (7.5YR 5/8), 5 percent fine prominent red (2.5YR 4/6) and 5 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; few crayfish krotovinas filled with gray (10YR6/1) silt loam; the Eg part of the horizon consists of albic material 1/8- to 1/2-inch wide and is a clay depletion because of aquic conditions; extremely acid; gradual wavy boundary.

Bt/Eg—31 to 41 inches; brownish yellow (10YR 6/6) and 15 percent light brownish gray (10YR 6/2), clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky structure; firm, hard; common very fine roots; common very fine tubular pores; 15 percent faint gray (10YR 6/1) clay films on faces of peds; 5 percent fine prominent yellowish red (5YR 5/6) and 5 percent fine and medium prominent red (2.5YR 4/6) masses of oxidized iron on faces of peds with clear boundaries; 5 percent fine and medium prominent gray (10YR 6/1) iron depletions in matrix with diffuse boundaries; few crayfish krotovinas filled with gray (10YR 6/1) silt loam; the Eg part of the horizon consists of albic material 1/8- to 1/2-inch wide and is a clay depletion because of aquic conditions; extremely acid; gradual wavy boundary.

B't—41 to 49 inches; brownish yellow (10YR 6/8) and 20 percent yellowish red (5YR 5/8) and 20 percent red (2.5YR 4/8), clay; weak coarse subangular blocky structure; very firm, very hard; common very fine roots; few very fine tubular pores; 20 percent distinct brownish yellow (10YR 6/8) clay films on faces of peds; 10 percent medium prominent light brownish gray (10YR 6/2) and 10 percent medium prominent gray (10YR 6/1) iron depletions in matrix with diffuse boundaries; 10 percent of the horizon is light gray (10YR 7/1) albic material 1/8- to 1/4-inch wide and is a clay depletion because of aquic conditions; extremely acid; gradual wavy boundary.

B'tg/E'g1—49 to 57 inches; light gray (2.5Y 7/2) and 20 percent light gray (10YR 7/2), clay; weak very coarse subangular blocky structure; very firm, very hard; few very fine roots; few very fine tubular pores; 15 percent faint gray (10YR 6/1) clay films on faces of peds; 20 percent medium and coarse prominent strong brown (7.5YR 4/6) masses of oxidized iron in matrix with clear boundaries; 10 percent fine and medium prominent brownish yellow (10YR 6/6) and 10 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 5 percent fine prominent red (2.5YR 4/6) masses of oxidized iron on faces of peds with sharp boundaries; the Eg part of the horizon consists of albic material 1/8- to 1/2-inch wide and is a clay depletion because of aquic conditions; extremely acid; gradual wavy boundary.

B'tg/E'g2—57 to 80 inches; light gray (2.5Y 7/1) and 20 percent light gray (10YR 7/2), clay loam; weak very coarse subangular blocky structure; very firm, very hard; few very fine roots; few very fine tubular pores; 15 percent faint gray (10YR 6/1) clay films on faces of peds; 25 percent medium and coarse prominent yellow (10YR 7/6) masses of oxidized iron in matrix with clear boundaries; 15 percent fine and medium prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 10 percent fine and medium prominent red (2.5YR 4/6) masses of oxidized iron on faces of peds with sharp boundaries; few crayfish krotovinas filled with gray (10YR 6/1) silt loam; the Eg part of the horizon consists of albic material 1/8- to 1/2-inch wide and is a clay depletion because of aquic conditions; extremely acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content of the particle-size control section is 20 to 30 percent. Reaction is extremely acid throughout the solum.

The Ag horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Texture is silt loam or loam. Iron concentrations in shades of brown range from 2 to 5 percent.

The Eg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is silt loam or loam. Iron concentrations in shades of brown and yellow range from 2 to 10 percent.

The Btg part of the Btg/Eg horizons has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. The Eg part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is silt loam, loam, or clay loam. Iron concentrations in shades of red, brown, and yellow range from 3 to 25 percent.

The Bt part of the Bt/Eg horizon has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 6 to 8. The Eg part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is clay loam or clay. Iron concentrations in shades of red, brown, and yellow range from 5 to 25 percent. Iron depletions in shades of gray range from 10 to 25 percent.

The Bt horizon, present in most pedons, has a mottled matrix with hues of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 or 8. Texture is clay loam or clay. Iron depletions in shades of gray range from 10 to 25 percent.

The B'tg part of the B’tg/E’g horizons has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2. This part also has 15 to 35 percent hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 6 to 8. The Eg part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is clay loam or clay. Iron concentrations in shades of red, yellow, and brown range from 5 to 20 percent. Iron-manganese concretions range from 1 to 2 percent.

Mollville Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Depressions on stream terrace
Parent material: Sandy and loamy alluvial sediments
Geology: Quaternary terraces
Drainage class: Poorly drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 0 to 1 percent

Associated Soils

- Besner soils are on adjoining mounds and are well drained.
- Hainesville soils are on slightly higher terrace positions.

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Typic Glossaqualfs

Typical Pedon

Mollville loam in an area of Mollville-Besner complex, 0 to 1 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 15.1 miles northwest on U.S. Highway 287 to Chester, 3.8 miles north on Farm Road

2097 to end of pavement, 0.3 mile north on continuing unpaved road, left at "Y" 2.0 miles northwest, 1.45 miles north on adjoining road, 4.05 miles northeast on adjoining road, and 50 feet northwest of road in a low area. Wolf Hill, Texas USGS Quadrangle; Latitude—31 degrees, 1 minute, 58.26 seconds N., and Longitude—94 degrees, 35 minutes, 0.00 seconds W.

Ap—0 to 3 inches; brown (10YR 5/3), loam; weak medium subangular blocky structure; friable, slightly hard; slightly acid; clear smooth boundary.

Eg—3 to 13 inches; light brownish gray (10YR 6/2), loam; 2 percent fine faint dark yellowish brown (10YR 4/4) iron masses; weak medium subangular blocky structure; friable, slightly hard; 22 percent discontinuous faint light gray (10YR 7/2) skeletons; 5 percent fine faint dark yellowish brown (10YR 4/4) iron-manganese masses between peds with diffuse boundaries; 5 percent fine faint light gray (10YR 7/2) clay depletions on faces of peds with diffuse boundaries; slightly acid; clear wavy boundary.

Btg/Eg1—13 to 24 inches; light gray (10YR 7/2) and light brownish gray (10YR 6/2), loam; weak medium subangular blocky structure; friable, hard; 5 percent fine faint dark yellowish brown (10YR 4/4) iron-manganese masses between peds with diffuse boundaries; 5 percent fine faint iron-manganese masses between peds with diffuse boundaries; light gray (10YR 7/2) above is (E) material; slightly acid; gradual wavy boundary.

Btg/Eg2—24 to 30 inches; light gray (10YR 7/2) and gray (10YR 6/1), loam; weak medium subangular blocky structure; friable, hard; 5 percent fine distinct brown (10YR 4/3) iron-manganese masses between peds with diffuse boundaries; 5 percent fine distinct reddish brown (5YR 4/3) iron-manganese masses between peds with diffuse boundaries; light gray (10YR 7/2) above is (E) material; slightly acid; gradual wavy boundary.

Btg/Eg3—30 to 43 inches; light gray (10YR 7/2) and light brownish gray (10YR 6/2), silty clay loam; moderate medium subangular blocky structure; very firm, very hard; 5 percent fine distinct very dark grayish brown (10YR 3/2) iron-manganese masses in matrix with diffuse boundaries; light gray (10YR 7/2) above is (E) material; slightly acid; gradual wavy boundary.

Btg/Eg4—43 to 49 inches; light gray (10YR 7/2) and light brownish gray (10YR 6/2), clay; weak medium subangular blocky structure; very firm, very hard; 5 percent medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; 5 percent fine distinct very dark grayish brown (10YR 3/2) iron-manganese concretions; light gray (10YR 7/2) above is (E) material; slightly acid; gradual wavy boundary.

BCtg1—49 to 65 inches; light brownish gray (10YR 6/2), silty clay loam; weak medium subangular blocky structure; firm, hard; 10 percent medium distinct yellow (2.5Y 7/6) masses of oxidized iron; 3 percent very dark grayish brown (10YR 3/2) iron-manganese concretions; neutral; gradual wavy boundary.

BCtg2—65 to 80 inches; 45 percent light brownish gray (10YR 6/2) and 40 percent light gray (10YR 7/2), silty clay loam; weak medium subangular blocky structure; firm, hard; 10 percent medium distinct yellow (2.5Y 7/6) masses of oxidized iron; 5 percent very dark grayish brown (10YR 3/2) iron-manganese concretions; neutral.

Range in Characteristics

Solum thickness ranges from 40 to more than 80 inches. Typically, when the solum is less than 60 inches thick the soil is underlain by a sandy 2C horizon. The clay content of the control section ranges from 20 to 35 percent. Salinity ranges from nonsaline to slightly saline and the sodium adsorption ratio ranges from 2 to 10 throughout the argillic horizon. About 20 to 40 percent of the sand fraction is coarser

than very fine sand. The soil is dry in the moisture control section for 50 cumulative days or more in most years.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Texture is loam. Reaction ranges from very strongly acid to moderately acid unless limed.

The Eg horizon has hue of 10YR, value of 4 to 8, and chroma of 1 or 2. Texture is fine sandy loam, very fine sandy loam, loam, or silt loam. Reaction ranges from very strongly acid to moderately acid unless limed. The combined thickness of the A and E horizons is 6 to 20 inches.

The Btg/E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2 in the Bt parts. The faces of some peds have darker coats than these colors. Iron accumulations in shades of red, brown, or yellow range from few to many. Texture is loam, sandy clay loam, or clay loam. Textures of silty clay loam and clay are below depths of 40 inches in some pedons. The E parts consist of albic material in the form of vertical intrusions, streaks or pockets that occupy 5 to about 35 percent of the horizon. Some subhorizon at least 2 inches in thickness has more than 15 percent intrusions of albic materials however. The E parts have hue of 10YR, value of 5 to 8, and chroma of 1 or 2. Reaction ranges from very strongly acid to moderately acid.

A BCtg/E horizon is present in some pedons below the Btg/E horizon. It has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2 in the BCt parts. Iron accumulations in shades of red, brown, or yellow range from few to many. Texture is loam, sandy clay loam, clay loam, or silty clay loam. The E parts consist of albic material in the form of vertical intrusions, streaks or pockets that occupy 5 to about 35 percent of the horizon. The E parts have hue of 10YR, value of 5 to 8, and chroma of 1 or 2. Reaction ranges from very strongly acid to slightly alkaline.

The Btg or BCtg horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. The faces of some peds have darker coats than these colors. Iron accumulations in shades of red, brown, or yellow range from few to many. Streaks of albic materials range from none to few. Texture is loam, sandy clay loam, clay loam, or silty clay loam. Reaction ranges from strongly acid to slightly alkaline.

The 2C horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 4, with or without streaks and iron accumulations in shades of red, brown, or yellow. Texture is loamy fine sand or fine sandy loam, or it is stratified with these textures. The average clay content ranges from 3 to about 12 percent. Reaction ranges from strongly acid to slightly alkaline.

Newco Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Side slope or ridge on interfluve
Parent material: Stratified loamy and clayey sediments of Pleistocene Age
Geology: Willis Formation
Drainage class: Moderately well drained
Slowest permeability: Slow
Soil depth class: Moderately deep to densic material
Shrink-swell potential: High
Slope: 1 to 15 percent

Associated Soils

- Doucette and Boykin soils have a sandy epipedon.
- Pinetucky soils are fine-loamy and contain plinthite.
- Stringtown soils have a fine-loamy control section.

- Urland and Bonwier soils are well drained.

Taxonomic Classification

Clayey, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Newco fine sandy loam in an area of Newco fine sandy loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 8.5 miles west on U.S. Highway 190, 3.5 miles south on woods road, 0.6 mile west on adjoining woods road, 0.15 mile north on pipeline, and 20 feet east in woods. Jacks Creek North, Texas USGS Quadrangle; Latitude—30 degrees, 42 minutes, 45.20 seconds N., and Longitude—94 degrees, 32 minutes, 2.80 seconds W.

A—0 to 3 inches; brown (10YR 4/3), fine sandy loam; weak fine granular structure; very friable, soft, nonsticky, nonplastic; many fine and medium roots and common coarse roots; very strongly acid; clear smooth boundary.

E—3 to 9 inches; pale brown (10YR 6/3), fine sandy loam; weak fine subangular blocky structure; very friable, soft, nonsticky, nonplastic; many fine and medium roots and common coarse roots; very strongly acid; clear wavy boundary.

Bt1—9 to 13 inches; red (2.5YR 5/8), clay; 5 percent medium distinct yellowish brown (10YR 5/4) mottles; moderate medium angular blocky structure; firm, hard, moderately sticky, moderately plastic; many fine roots; very strongly acid; gradual wavy boundary.

Bt2—13 to 35 inches; red (2.5YR 4/8), clay; moderate medium subangular blocky structure; very firm, very hard, very sticky, very plastic; many fine roots; 20 percent coarse prominent light gray (10YR 7/2) masses of reduced iron; 2 percent medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; clear wavy boundary.

Btg—35 to 48 inches; light gray (10YR 7/2), clay; moderate medium subangular blocky structure; very firm, very hard, very sticky, very plastic; common fine roots; 5 percent medium distinct yellowish red (5YR 5/8) masses of oxidized iron; very strongly acid; gradual wavy boundary.

Cd—48 to 80 inches; light brownish gray (10YR 6/2), noncemented silty clay; massive; very firm, very hard; 5 percent medium distinct yellowish red (5YR 5/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness ranges from 40 to 60 inches. Base saturation ranges from 10 to 30 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is fine sandy loam. Reaction is very strongly acid to moderately acid.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 2 or 3. Texture is fine sandy loam or loam. Reaction is very strongly acid to moderately acid.

The upper Bt horizon has a hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8. Mottles in shades of red and yellow range from none to common. Redoximorphic depletions because of wetness and range from none to common in the Bt, but low chroma are within 24 inches of the top of the Bt. Texture is silty clay or clay. Reaction is very strongly acid or strongly acid.

The lower Bt horizon has hue of 10YR, value of 6 or 7, chroma of 1 or 2. Mottles in shades of red, brown, or yellow range from none to common. Texture is silty clay or clay. Reaction is very strongly acid or strongly acid.

The C horizon has hue of 10YR, value of 6 or 7, chroma of 1 or 2. Mottles in shades of red, brown, or yellow range from none to common. Texture is variable from fine sandy loam to clay with layers of shale and sandstone. Reaction is very strongly acid or strongly acid.

Niwana Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Inland dissected coastal plain
Landform: Mounds
Parent material: Loamy early Pleistocene age sediments
Geology: Lisse Formation
Drainage class: Well drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Dallardsville soils are moderately well drained.
- Kountze soils are moderately well drained.
- Otanya soils have a fine-loamy control section.
- Waller soils are poorly drained and are fine-loamy.

Taxonomic Classification

Coarse-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Niwana fine sandy loam in an area of Kirbyville-Niwana complex, 0 to 1 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1943 in Fred, 2.3 miles south on Farm Road 92, 1.5 miles west on county road, 0.3 miles northwest on forest road, and 150 west of road in forest. Fred, Texas USGS Quadrangle; Latitude—30 degrees, 32 minutes, 9.90 seconds N., and Longitude—94 degrees, 12 minutes, 40.10 seconds W.

A—0 to 6 inches; brown (10YR 4/3), fine sandy loam; 2 percent fine distinct brown (7.5YR 4/4) mottles; weak medium subangular blocky structure; firm, slightly hard, nonsticky, nonplastic; many fine and medium roots; common fine and medium interstitial and tubular pores; strongly acid; clear smooth boundary.

E—6 to 17 inches; light brown (7.5YR 6/4), loam; 4 percent fine distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; firm, slightly hard, nonsticky, nonplastic; common fine and medium roots; common fine and medium interstitial and tubular pores; strongly acid; clear smooth boundary.

E/Bt—17 to 22 inches; brownish yellow (10YR 6/6) and 20 percent reddish yellow (7.5YR 6/8), loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, slightly hard, nonsticky, nonplastic; common very fine and fine roots; common fine tubular pores; strongly acid; clear smooth boundary.

Bt/E1—22 to 29 inches; brownish yellow (10YR 6/8), loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard, slightly sticky, slightly plastic; common very fine and fine roots; common fine

tubular pores; 20 percent by volume albic tongues; 2 percent faint brownish yellow (10YR 6/6) clay films on faces of peds; 20 percent light yellowish brown (10YR 6/4) clay depletions; 10 percent fine prominent yellowish red (5YR 5/6) iron-manganese masses; strongly acid; gradual smooth boundary.

Bt/E2—29 to 46 inches; brownish yellow (10YR 6/6), loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard, slightly sticky, slightly plastic; common very fine and fine roots; common fine tubular pores; 15 percent by volume albic tongues; 2 percent faint brownish yellow (10YR 6/6) clay films on faces of peds; 15 percent light yellowish brown (10YR 6/4) clay depletions; 10 percent fine and medium yellowish red (5YR 5/6) iron-manganese masses; 2 percent fine red (2.5YR 4/6) plinthite nodules; very strongly acid; gradual smooth boundary.

Bt/E3—46 to 60 inches; brownish yellow (10YR 6/6), loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard, slightly sticky, slightly plastic; common very fine and fine roots; common fine tubular pores; 20 percent by volume albic tongues; 4 percent distinct brownish yellow (10YR 6/6) clay films on faces of peds; 20 percent pale brown (10YR 6/3) clay depletions; 10 percent fine and medium yellowish red (5YR 5/6) iron-manganese masses; 2 percent fine red (2.5YR 4/6) plinthite nodules; strongly acid; gradual smooth boundary.

Bt/E4—60 to 80 inches; brownish yellow (10YR 6/6), loam; weak medium prismatic structure; firm, hard, slightly sticky, slightly plastic; common very fine roots; common fine tubular pores; 20 percent by volume albic tongues; 4 percent distinct brownish yellow (10YR 6/6) clay films on faces of peds; 20 percent pale brown (10YR 6/3) clay depletions; 10 percent fine and medium yellowish red (5YR 5/6) iron-manganese masses; 2 percent fine red (2.5YR 4/6) plinthite nodules; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Base saturation ranges from 15 to 35 percent at 72 inches. Average clay content in the particle-size control section ranges from 8 to 15 percent. CEC to clay ratio ranges from 0.30 to 0.40. The combined thickness of the A and E horizon is more than 20 inches.

The A horizon has a hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is fine sandy loam. Reaction is very strongly acid or strongly acid.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4. Texture is very fine sandy loam, fine sandy loam, or loam. Reaction ranges from very strongly acid or strongly acid.

The Bt part of the upper Bt/E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. The Bt/E horizon has texture of fine sandy loam or loam, with clay content of less than 18 percent. The E part has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. The E material ranges from 15 to 25 percent. Redoximorphic features in shades of yellow or brown range from 0 to 5 percent. Reaction is very strongly acid or strongly acid.

The Bt part of the lower Bt/E horizon has hue of 7.5YR or 10YR, value 5 or 6, and chroma of 6 or 8. The Bt/E horizon has texture of loam or sandy clay loam. Clay content ranges from 18 to 30 percent. The E part has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. The amount of E material decreases with depth. Redoximorphic features in shades of red, yellow, or brown range from 2 to 15 percent. Iron depletions in shades of gray ranges from 0 to 3 percent. Plinthite ranges from 0 to 3 percent. Masses of brittle soil materials make up to 20 percent of the volume in some pedons. Reaction is very strongly acid or strongly acid.

Nona Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Flats
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Geology: Lissie Formation
Drainage class: Poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 0 to 1 percent

Associated Soils

- Dallardsville soils are on mounds 2 to 3 feet higher.
- Plank soils have a coarse-silty particle-size control sections and are on similar positions.
- Sorter soils have a coarse-loamy particle-size control section and are on similar positions.

Taxonomic Classification

Fine-silty, siliceous, active, thermic Natric Vermaqualfs

Typical Pedon

Nona very fine sandy loam (fig. 24) in an area of Nona-Dallardsville complex, 0 to 1 percent slopes; located in Hardin County, Texas, from the intersection of Texas Highway 92 and Farm Road 2937 north of Silsbee, 4.3 miles north on Texas Highway 92 to Gore Store Road, 2.2 miles west on Gore Store Road to forest road, 0.2 mile south on forest road, and 50 feet west on intermound in woodland. Deserter Baygall, Texas USGS Quadrangle; Latitude—30 degrees, 28 minutes, 12.00 seconds N., and Longitude—94 degrees, 13 minutes, 20.00 seconds W.

A—0 to 3 inches; grayish brown (10YR 5/2), very fine sandy loam; weak fine granular structure; friable, soft; many fine and medium roots; common fine and medium interstitial and tubular pores; 7 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron lining pores with clear boundaries; 30 percent crayfish krotovinas; extremely acid; clear smooth boundary.

Bg1—3 to 7 inches; gray (10YR 5/1), very fine sandy loam; weak coarse prismatic and massive; friable, slightly hard; common fine and medium roots and common coarse roots; common fine and medium interstitial and tubular pores; 28 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with diffuse boundaries; 8 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron on faces of peds with diffuse boundaries; 3 percent fine distinct very dark gray (10YR 3/1) iron-manganese concretions; 60 percent crayfish krotovinas filled with very pale brown (10YR 7/3) very fine sand and grayish brown (10YR 5/2) silt loam; very strongly acid; clear smooth boundary.

Bg2—7 to 19 inches; light brownish gray (10YR 6/2), very fine sandy loam; massive and weak coarse prismatic; friable, slightly hard; common fine roots; common fine tubular pores; 12 percent fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron lining pores with diffuse

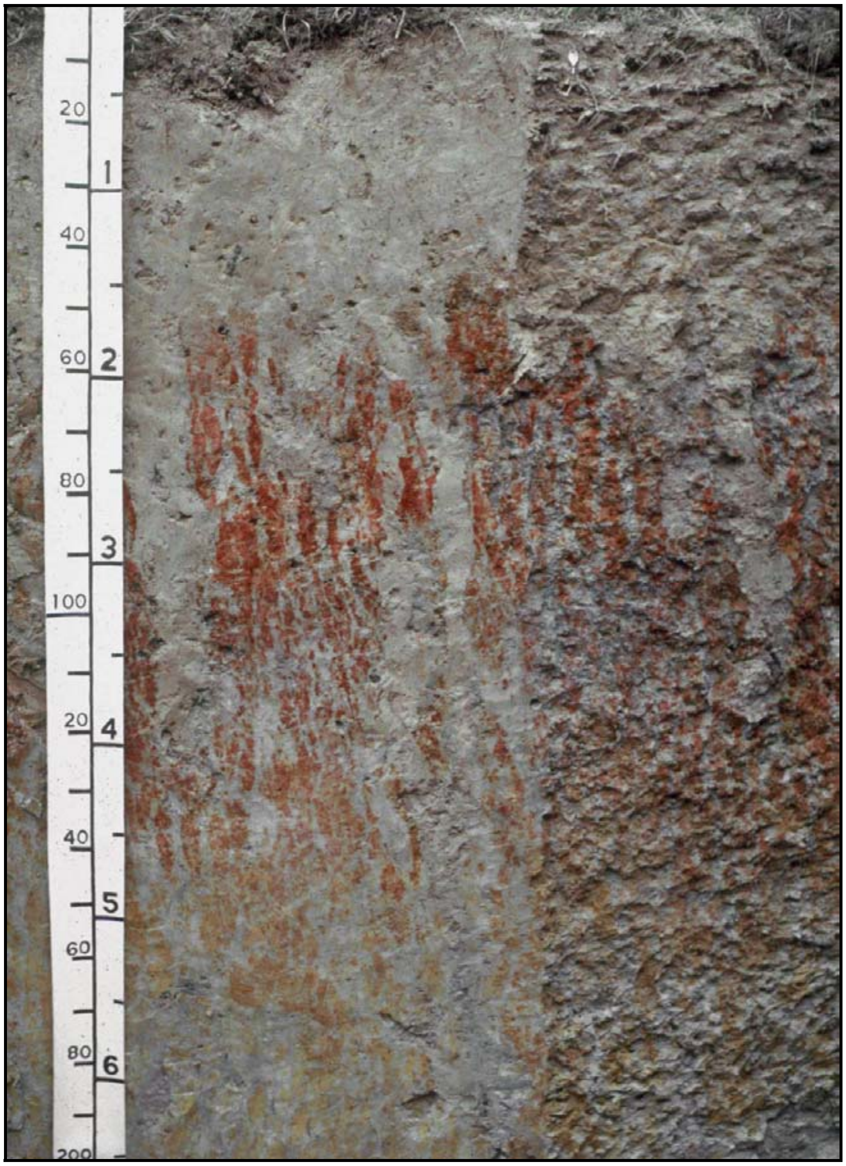

Figure 24.—Profile of Nona very fine sandy loam in an area of Nona-Dallardsville complex, 0 to 1 percent slopes. The gray colors are because of wetness.

boundaries; 8 percent fine prominent strong brown (7.5YR 5/8) masses of oxidized iron lining pores with clear boundaries; 5 percent fine and medium prominent red (2.5YR 4/8) masses of oxidized iron on faces of peds with sharp boundaries; massive structure because of crayfish bioturbation; very strongly acid; gradual wavy boundary.

Btg/Eg1—19 to 38 inches; 50 percent gray (10YR 5/1) and 20 percent gray (10YR 6/1), loam; moderate coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm, hard; common fine and medium roots and common coarse roots; common fine and medium interstitial and tubular pores; 15 percent distinct gray (10YR 5/1) clay films on faces of peds; 12 percent fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds with diffuse boundaries; 8 percent fine prominent strong brown (7.5YR 5/8) masses of oxidized iron on faces of peds

with clear boundaries; 5 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with sharp boundaries; 4 percent fine very dark gray (10YR 3/1) ironstone nodules; 3 percent fine and medium prominent red (2.5YR 4/8) masses of oxidized iron on faces of peds with sharp boundaries; 1 percent fine red (2.5YR 4/8) plinthite nodules; massive structure because of crayfish bioturbation; very strongly acid; gradual wavy boundary.

Btg/Eg2—38 to 53 inches; gray (10YR 5/1) and 15 percent gray (10YR 6/1), clay loam; moderate coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm, very hard; common fine and medium roots and common coarse roots; common fine tubular pores; 5 percent distinct gray (10YR 5/1) slickensides (pedogenic) and 15 percent distinct gray (10YR 5/1) clay films on faces of peds; 12 percent fine and medium prominent yellowish brown (10YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 10 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds with clear boundaries; 4 percent fine very dark gray (10YR 3/1) ironstone nodules; 3 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with sharp boundaries; 1 percent fine red (2.5YR 4/8) plinthite nodules; 10 percent crayfish krotovinas filled with brown (10YR 5/3) very fine sand and light brownish gray (10YR 6/2) silt loam; very strongly acid; gradual wavy boundary.

Btg/Eg3—53 to 72 inches; light gray (10YR 7/1) and 15 percent light gray (10YR 7/1), loam; weak coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm, very hard; common fine roots; common very fine tubular pores; 5 percent distinct gray (10YR 6/1) slickensides (pedogenic) and 15 percent distinct gray (10YR 6/1) clay films on faces of peds; 15 percent medium and coarse prominent red (2.5YR 4/6) masses of oxidized iron on faces of peds with sharp boundaries; 10 percent medium and coarse prominent yellowish brown (10YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 1 percent fine threadlike barite crystals; 10 percent crayfish krotovinas filled with brown (10YR 5/3) and pale brown (10YR 6/3) very fine sand; very strongly acid; gradual smooth boundary.

Btg/Eg4—72 to 80 inches; 45 percent gray (10YR 6/1) and 20 percent light gray (10YR 7/1), clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; very firm, very hard; common fine roots; common very fine tubular pores; 5 percent distinct gray (10YR 6/1) slickensides (pedogenic) and 15 percent distinct gray (10YR 6/1) clay films on faces of peds; 12 percent fine prominent red (2.5YR 4/8) masses of oxidized iron on faces of peds with sharp boundaries; 12 percent medium and coarse prominent yellowish brown (10YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; 10 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron lining pores with clear boundaries; 1 percent fine threadlike barite crystals; 10 percent crayfish krotovinas filled with pale brown (10YR 6/3) very fine sand and gray (10YR 6/1) silt loam; extremely acid.

Range in Characteristics

Solum thickness is more than 80 inches. Soil moisture is in an udic soil moisture regime. The soil moisture control section is 4 to 12 inches. Mean annual soil temperature ranges from 68 to 70 degrees F. Aluminum saturation ranges from 50 to 80 percent. Exchangeable sodium percentage ranges from 6 to 11. Reaction ranges from extremely acid or very strongly acid throughout. Particle-size control section (weighted average) clay content ranges from 20 to 35 percent. Sands larger than

very fine sand content ranges from 5 to 15 percent. Depth to barite ranges from 45 to 60 inches. CEC/clay ratio ranges from 0.45 to 0.55.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. Texture is very fine sandy loam. Redoximorphic features in shades of brown and yellow range from few to common. Exchangeable sodium percentage ranges from 2 to 5, Crawfish bioturbation ranges from 10 to 40 percent.

The Bg horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is very fine sandy loam, silt loam, or loam. Redoximorphic features in shades of red, brown, and yellow range from common to many. Exchangeable sodium percentage ranges from 3 to 10. Crawfish bioturbation ranges from 50 to 80 percent.

The Btg/Eg horizon has (for the Btg part) hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. Eg part has hue of 10YR or 2.5Y, value of 6 to 8, and chroma of 1 or 2. Texture is silt loam, loam, or clay loam (This is the horizon after mixing. The Btg part is typically clay loam or clay, and the Eg part is very fine sand or silt loam.) Clay films are common or many and are faint to distinct throughout. Redoximorphic features in shades of red, brown, yellow, gray, green, or blue range from few to many. Identifiable barite crystals range from 1 to 5 percent. Exchangeable sodium percentage ranges from 6 to 11 percent. Crawfish bioturbation ranges from 10 to 50 percent and decreases with depth.

Olive Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Depression
Parent material: Sandy and loamy sediments of mid to late Pleistocene age
Geology: Deweyville Formation
Drainage class: Very poorly drained
Slowest permeability: Very slow
Soil depth class: Moderately deep to fragipan layer
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Babco soils have spodic horizons and are on mounds.
- Belrose soils do not have fragipans and are on higher positions.
- Jayhawker soils have a fragipan at 55 to 75 inches and are on similar positions.
- Tyden soils do not have fragipan and are on similar positions.

Taxonomic Classification

Coarse-loamy, siliceous, superactive, thermic Umbric Fragiaquults

Typical Pedon

Olive fine sandy loam (fig. 25) in an area of Olive-Dallardsville complex, 0 to 1 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1013 in Spurger, 4.2 miles west on Farm Road 1013, 0.1 mile south on county road, 0.3 mile east and 2.6 miles south on forest road, 0.3 mile southeast on forest road, 0.35 mile south on forest road, and 40 feet east of road in forest. Spurger, Texas USGS Quadrangle; Latitude—30 degrees, 38 minutes, 34.70 seconds N., and Longitude—94 degrees, 13 minutes, 37.00 seconds W.

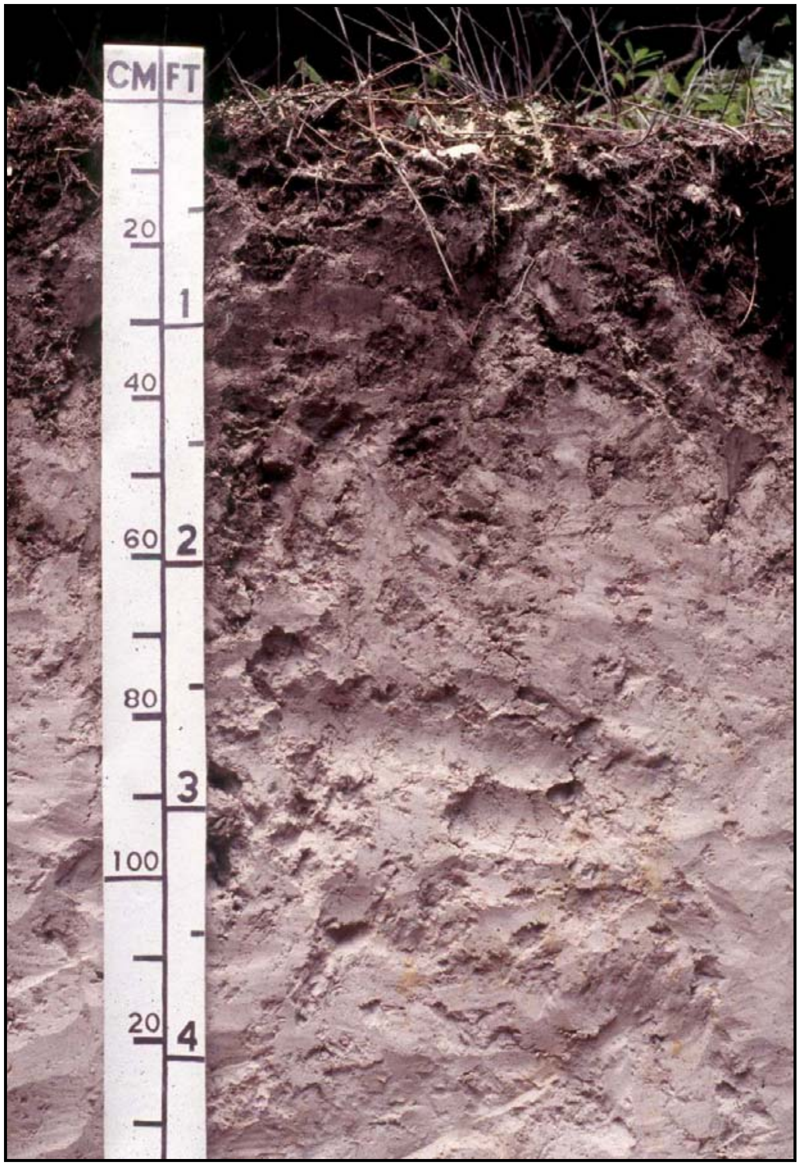

Figure 25.—Profile of Olive silt loam in an area of Olive-Dallardsville complex, 0 to 1 percent slopes. Fragic properties begin at a depth of 30 inches.

Ag—0 to 10 inches; black (N 2.5/), fine sandy loam; weak medium and coarse prismatic structure; firm, slightly hard, nonsticky, nonplastic; many very fine and fine roots; common very fine and fine interstitial and tubular pores; extremely acid; clear smooth boundary.

Eg—10 to 30 inches; light gray (10YR 7/2), fine sandy loam; 10 percent fine distinct yellow (10YR 7/8) mottles; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm, slightly hard, nonsticky, nonplastic; common very fine and fine roots; common fine interstitial and tubular pores; 20 percent grayish brown (10YR 5/2) organic stains on vertical faces of peds; very strongly acid; gradual smooth boundary.

Exg/Btxg1—30 to 49 inches; 80 percent light gray (10YR 7/2) and 20 percent light gray (10YR 7/1), loam; moderate medium prismatic structure parting to moderate medium subangular blocky; very firm, very hard, nonsticky,

nonplastic; common very fine and fine roots; common fine vesicular pores; 2 percent fine prominent brown (7.5YR 4/4) iron-manganese concretions on faces of peds with clear boundaries; 2 percent fine distinct clay depletions on vertical faces of peds with diffuse boundaries; 50 percent brittleness in E material; very strongly acid; gradual wavy boundary.

Exg/Btxg2—49 to 80 inches; 60 percent light gray (10YR 7/2) and 40 percent light gray (10YR 7/1), loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; very firm, very hard, nonsticky, nonplastic; common very fine roots; common fine vesicular pores; 2 percent fine and medium prominent olive yellow (2.5Y 6/6) and brownish yellow (10YR 6/8) iron-manganese concretions; 60 percent brittleness in E material; very strongly acid.

Range in Characteristics

Solum thickness ranges from 20 to 36 inches. Depth to argillic material is 30 to 60 inches from the surface. Weighted average clay content of the particle-size control section ranges from 3 to 12 percent. Base saturation ranges from 5 to 20 percent throughout.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. Texture is fine sandy loam. Redoximorphic features in shades of yellow, brown, and gray range from few to common. Reaction is ultra acid or extremely acid.

The Eg horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. Texture is fine sandy loam or silt loam. Redoximorphic features in shades of yellow, brown, and gray range from few to common. The horizon is up to 40 percent brittle in the lower part. Reaction is ultra acid or extremely acid.

The Exg horizon, where present, has hue of 10YR or 2.5Y, value of 6 to 8, and chroma of 1 or 2. Texture is fine sandy loam or silt loam. Redoximorphic features in shades of yellow, brown, and gray range from few to common. The horizon is 60 to 90 percent brittle or very brittle. Reaction is extremely acid or very strongly acid.

The Exg part of the Exg/Btxg horizon has hue of 10YR or 2.5Y, value of 6 to 8, and chroma of 1 or 2. Texture is fine sandy loam or silt loam. The Btxg part has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Texture is fine sandy loam, silt loam, or loam. Iron concentrations range from few to common in shades of yellow or brown. Redoximorphic features in shades of gray range from few to common. The horizon is 70 to 90 percent brittle or very brittle. Reaction is extremely acid or very strongly acid.

Otanya Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Inland dissected coastal plain
Landform: Backslope or shoulder
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Geology: Lissie Formation
Drainage class: Well drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 5 percent

Associated Soils

- Dallardsville soils are moderately well drained and are on mounds.
- Kirbyville soils are moderately well drained and are on lower positions.
- Kountze soils are moderately well drained.

- Sorter soils are poorly drained and are in lower positions.
- Waller soils are poorly drained and are on lower positions.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Plinthic Paleudults

Typical Pedon

Otanya very fine sandy loam (fig. 26) in an area of Otanya very fine sandy loam, 1 to 3 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1493 in Fred, 3.3 miles west on Farm Road 1493 to county road, 0.7 mile south to forest road, 0.4 mile east on forest road, 200 feet north, and 50 feet west. West Fred, Texas USGS Quadrangle; Latitude—30 degrees 32 minutes 53.00 seconds north N., and Longitude—94 degrees 13 minutes 53.00 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2), very fine sandy loam; weak fine subangular blocky and weak fine granular structure; friable, soft; many very fine to medium roots; common very fine and fine interstitial and tubular pores; 1 percent fine and medium distinct wormcasts; 5 percent by volume fine and medium masses of brown (10YR 5/3) very fine sandy loam throughout; strongly acid; clear smooth boundary.

Figure 26.—Profile of Otanya very fine sandy loam in an area of Otanya very fine sandy loam, 1 to 3 percent slopes.

E1—6 to 12 inches; 70 percent light yellowish brown (10YR 6/4) and 30 percent brown (10YR 5/3), very fine sandy loam; weak fine subangular blocky structure; friable, soft; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 1 percent medium cylindrical ironstone nodules;1 percent fine distinct brown (7.5YR 4/4) iron-manganese masses with sharp boundaries lining pores; very strongly acid; clear smooth boundary.

E2—12 to 19 inches; light yellowish brown (10YR 6/4) and 35 percent brownish yellow (10YR 6/6), very fine sandy loam; weak medium and coarse prismatic structure parting to weak medium and coarse subangular blocky; friable, slightly hard; common very fine and fine roots; few very fine tubular pores; 2 percent medium cylindrical ironstone nodules; 3 percent fine and medium distinct reddish yellow (7.5YR 6/6) masses of oxidized iron with sharp boundaries on surfaces of peds; very strongly acid; clear smooth boundary.

Bt—19 to 28 inches; brownish yellow (10YR 6/6), very fine sandy loam; weak medium and coarse prismatic structure parting to weak medium and coarse subangular blocky; friable, slightly hard; common very fine roots; few very fine tubular pores; 2 percent light yellowish brown (10YR 6/4) very fine sandy loam glossic material; 15 percent distinct brownish yellow (10YR 6/8) clay films on surfaces of peds; 4 percent medium cylindrical ironstone nodules; 2 percent fine prominent yellowish red (5YR 5/8) and 3 percent fine and medium distinct reddish yellow (7.5YR 6/8) masses of oxidized iron with sharp boundaries on surfaces of peds; very strongly acid; gradual smooth boundary.

Btc1—28 to 43 inches; brownish yellow (10YR 6/8), sandy clay loam; weak medium and coarse prismatic structure parting to weak medium and coarse subangular blocky; firm, hard; few very fine roots; few very fine tubular pores; 2 percent light yellowish brown (10YR 6/4) very fine sandy loam glossic material; 15 percent distinct brownish yellow (10YR 6/8) clay films on surfaces of peds; 10 percent medium cylindrical ironstone nodules; 2 percent medium cylindrical red (2.5YR 4/6) plinthite nodules; 2 percent fine prominent yellowish red (5YR 5/6) and 5 percent fine and medium distinct reddish yellow (7.5YR 6/8) masses of oxidized iron with sharp boundaries on surfaces of peds; very strongly acid; clear smooth boundary.

Btc2—43 to 60 inches; brownish yellow (10YR 6/8), sandy clay loam; weak medium and coarse prismatic structure parting to weak medium and coarse subangular blocky; firm, hard; few very fine roots; few very fine tubular pores; 2 percent light yellowish brown (10YR 6/4) very fine sandy loam glossic material; 20 percent distinct brownish yellow (10YR 6/8) clay films on surfaces of peds; 12 percent medium cylindrical ironstone nodules; 3 percent medium cylindrical red (2.5YR 4/6) plinthite nodules; 1 percent fine distinct light brownish gray (10YR 6/2) iron depletions with sharp boundaries on surfaces along root channels; 2 percent fine prominent yellowish red (5YR 5/6), 3 percent fine and medium distinct reddish yellow (7.5YR 6/8), and 5 percent medium prominent red (2.5YR 4/8) masses of oxidized iron with sharp boundaries on surfaces of peds; very strongly acid; clear wavy boundary.

B't1—60 to 78 inches; brownish yellow (10YR 6/8), sandy clay loam; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; firm, hard; few very fine roots; few very fine tubular pores; 25 percent distinct brownish yellow (10YR 6/8) clay films on surfaces of peds; 5 percent medium cylindrical ironstone nodules; 2 percent medium cylindrical red (2.5YR 4/6) plinthite nodules; 2 percent fine distinct light brownish gray (10YR 6/2) iron depletions with sharp boundaries on surfaces along root channels; 2 percent fine prominent yellowish red (5YR 5/6), 3 percent fine and medium distinct reddish yellow (7.5YR 6/8), and 8 percent medium prominent red (2.5YR 4/8)

masses of oxidized iron with sharp boundaries on surfaces of peds; very strongly acid; gradual wavy boundary.

B't2—78 to 80 inches; brownish yellow (10YR 6/6), sandy clay loam, brownish yellow (10YR 6/6), dry; weak coarse subangular blocky structure; firm, hard; few very fine roots; few very fine tubular pores; 25 percent distinct brownish yellow (10YR 6/8) clay films on faces of peds; 5 percent medium cylindrical ironstone nodules; 2 percent medium cylindrical red (2.5YR 4/6) plinthite nodules; 2 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron with sharp boundaries on faces of peds; 15 percent medium and coarse distinct pale brown (10YR 6/3) masses of oxidized iron in matrix; 5 percent fine and medium distinct reddish yellow (7.5YR 6/8) masses of oxidized iron with sharp boundaries on faces of peds; 8 percent medium prominent red (2.5YR 4/8) masses of oxidized iron with sharp boundaries on faces of peds; very strongly acid; 25 percent medium and coarse distinct light brownish gray (10YR 6/2) iron depletions with sharp boundaries on surfaces along root channels; gradual wavy boundary.

Range in Characteristics

Soil moisture is an udic soil moisture regime. The soil moisture control section is 4 to 12 inches below the soil surface and remains dry less than 90 cumulative days in most years. Mean annual soil temperature ranges from 68 to 70 degrees F. Depth to argillic horizon ranges from 7 to 23 inches.

Depth to gray redoximorphic features ranges from 38 to 48 inches. Particle-size control section (weighted average) clay content ranges from 18 to 25 percent. CEC/clay ratio ranges from 0.30 to 0.40.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is fine sandy loam or very fine sandy loam. Clay content ranges from 3 to 12 percent. Reaction is very strongly acid or strongly acid.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 3 or 4. Texture is very fine sandy loam, fine sandy loam, or loam. Clay content ranges from 3 to 12 percent. Ironstone nodules range from 0 to 10 percent. Redoximorphic features in shades of brown and yellow range from none to common. Reaction ranges from very strongly acid to moderately acid.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. Texture is very fine sandy loam, loam, or sandy clay loam. Clay content ranges from 18 to 25 percent. Ironstone nodules range from 1 to 8 percent. Plinthite nodules range from 0 to 2 percent. Redoximorphic features in shades of red, yellow, and brown range from few to common. Reaction ranges from very strongly acid to moderately acid.

The Btc horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. Texture is loam, sandy clay loam, or clay loam. Clay content ranges from 22 to 33 percent. Ironstone nodules range from 5 to 10 percent. Plinthite nodules range from 2 to 5 percent. Redoximorphic features in shades of red, brown, yellow, and gray range from none to many. Base saturation ranges from 25 to 35 percent. Reaction ranges from very strongly acid to moderately acid.

Ozias Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Flood plain
Parent material: Clayey alluvium
Geology: Quaternary alluvium

Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Very high
Slope: 0 to 1 percent

Associated Soils

- Koury soils are moderately well drained.
- Pophers series on similar flood plain positions.

Taxonomic Classification

Fine, smectitic, thermic Aeric Dystraquerts

Typical Pedon

Ozias clay in an area of Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded; from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 15.1 miles northwest on U.S. Highway 287 to Chester, 3.8 miles north on Farm Road 2097 to end of pavement, 0.3 mile north continuing on unpaved road, at "Y", right (northeast) 3.7 miles on County Road 2670, left (northeast) at "Y" 3.4 miles on woods road (through 2 gates), and 100 feet southeast in woods. Wolf Hill, Texas USGS Quadrangle; Latitude—31 degrees, 2 minutes, 18.20 seconds N., and Longitude—94 degrees, 32 minutes, 59.40 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2), clay; weak medium subangular blocky structure; very firm, very hard; many fine and medium roots and common coarse roots; 2 percent discontinuous faint yellowish brown (10YR 5/4) organic stains; very strongly acid; clear wavy boundary.

Bg1—6 to 12 inches; grayish brown (10YR 5/2), clay; weak medium subangular blocky structure; very firm, very hard; many fine roots and many medium roots; 2 percent discontinuous distinct dark yellowish brown (10YR 4/4) organic stains; 10 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron on surfaces along root channels with diffuse boundaries; very strongly acid; gradual wavy boundary.

Bg2—12 to 18 inches; dark grayish brown (10YR 4/2), clay; weak medium subangular blocky structure; very firm, very hard; many fine and medium roots; 5 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron on surfaces along root channels with diffuse boundaries; very strongly acid; gradual wavy boundary.

Bssg1—18 to 38 inches; dark gray (10YR 4/1), clay; weak medium subangular blocky structure; very firm, very hard; common fine roots; 2 percent discontinuous faint brown (10YR 4/3) organic stains and 5 percent slickensides (pedogenic); 2 percent fine distinct weakly cemented black (10YR 2/1) iron-manganese masses; very strongly acid; gradual wavy boundary.

Bssg2—38 to 51 inches; 50 percent gray (10YR 5/1) and 40 percent dark gray (10YR 4/1), clay; weak medium subangular blocky structure; very firm, very hard; common fine roots; 5 percent discontinuous distinct dark yellowish brown (10YR 4/4) organic stains; 5 percent slickensides (pedogenic); 5 percent fine and medium distinct weakly cemented very dark grayish brown (10YR 3/2) iron-manganese masses; very strongly acid; clear wavy boundary.

Bssyg—51 to 80 inches; grayish brown (10YR 5/2), clay; weak coarse subangular blocky structure; very firm, very hard; common fine roots; 5 percent slickensides (pedogenic); 5 percent fine and medium distinct iron-manganese masses; 5 percent fine and medium distinct light gray (10YR 7/1) gypsum masses; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The solum is cyclic and the soil has gilgai microrelief and microhighs 6 to 10 inches higher than microlows. Distance from the center of the microhigh to the center of the microlow ranges from about 4 to 12 feet. Cracks at least 1 centimeter wide extend from the surface to a depth of more than 12 inches when the soil is dry. The cracks are open for less than 90 cumulative days in most years. Intersecting slickensides begin at 14 to 30 inches deep and extend for more than 20 inches. The electrical conductivity ranges from 4 to 12 mmhos/cm in some part of the particle-size control section. The clay content of the control section ranges from 40 to 60 percent, and the silt content exceed 40 percent.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3. Redoximorphic features in shades of red, brown, and yellow range from none to common. Texture is clay. Electrical conductivity ranges from 0 to 4 mmhos/cm in forest or natural areas and from 2 to 8 mmhos/cm in cleared areas. Reaction is extremely acid or very strongly acid. Some pedons have a thin Oe or Oi layer of slightly to intermediately decomposed plant materials at the surface up to 3 inches thick.

The Bg or Bw horizon has hue 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3. Redoximorphic features in shades of red, brown, or yellow range from few to common in most pedons. Texture is silty clay loam, silty clay, or clay. Pressure faces and small slickensides range from none to few. Electrical conductivity ranges from 1 to 8 mmhos/cm but is typically less than 4. Reaction is extremely acid or very strongly acid.

The Bssg or Bssyg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. Redoximorphic features in shades of red, yellow, or brown range from few to many. Some subhorizons have a variegated matrix of these colors. Gypsum crystals range from few to common below a depth of 40 inches in some pedons. Texture is silty clay loam, silty clay, or clay. Slickensides range from common to many. Electrical conductivity ranges from 1 to 8 mmhos/cm to a depth of about 40 inches and 2 to 16 mmhos/cm to 80 inches. Reaction ranges from extremely acid to moderately acid.

A Bg' or BCg horizon, where present, occurs below a depth of 40 inches, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. Texture is sandy clay loam, clay loam, or clay. Electrical conductivity ranges from 2 to 16 mmhos/cm. Reaction ranges from extremely acid to moderately acid.

Pinetucky Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Ridge on interfluve
Parent material: Loamy coastal plain sediments of Pleistocene age
Geology: Willis Formation
Drainage class: Moderately well drained
Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 5 percent

Associated Soils

- Bonwier and Urland soils occur on ridgetops.
- Rogan soils occur on gently sloping areas.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Plinthic Paleudults

Typical Pedon

Pinetucky fine sandy loam in an area of Pinetucky fine sandy loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 287 and U.S. Highway 190 in Woodville; 4.9 miles west on U.S. Highway 190, 8.5 miles south and southwest on Farm Road 256 to County Road 1150, and continuing on woods road to the intersection with an adjoining woods road, and 25 feet north in woods. Jacks Creek North, Texas USGS Quadrangle; Latitude—30 degrees, 40 minutes, 1.30 seconds N., and Longitude—94 degrees, 32 minutes, 3.30 seconds W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2), fine sandy loam; weak fine subangular blocky structure; very friable, soft; many fine and medium roots and many coarse roots; many fine and medium pores; 1 percent ironstone nodules; very strongly acid; clear wavy boundary.

E—5 to 9 inches; pale brown (10YR 6/3), fine sandy loam; 5 percent fine and medium distinct dark grayish brown (10YR 4/2) mottles; weak fine subangular blocky structure; very friable, soft; many fine and medium roots and many coarse roots; many fine and medium and common coarse pores; 2 percent ironstone nodules; 2 percent fine distinct yellowish brown (10YR 5/6) wormcasts; very strongly acid; clear wavy boundary.

Bt—9 to 15 inches; yellowish brown (10YR 5/8), sandy clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm, very hard, moderately sticky, slightly plastic; common fine and medium roots; many fine and medium pores; 10 percent clay films; 1 percent ironstone nodules; 2 percent pale brown (10YR 6/3) wormcasts; very strongly acid; clear wavy boundary.

Btv1—15 to 26 inches; strong brown (7.5YR 5/6), sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm, very hard, moderately sticky, moderately plastic; many fine and medium roots; many fine and medium and common coarse pores; 25 percent clay films; 10 percent fine and medium prominent red (2.5YR 5/6) masses of oxidized iron; 6 percent plinthite nodules; 2 percent ironstone nodules; very strongly acid; clear wavy boundary.

Btv2—26 to 38 inches; reddish yellow (7.5YR 6/8), sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm, very hard, moderately sticky, moderately plastic; common fine and medium roots; many fine and medium and common coarse pores; 25 percent clay films; 10 percent plinthite nodules; 10 percent fine and medium prominent reddish brown (2.5YR 5/4) masses of oxidized iron; 5 percent ironstone nodules; very strongly acid; clear wavy boundary.

Btv/C—38 to 62 inches; variegated matrix with light red (10R 7/6), strong brown (7.5YR 4/6), red (2.5YR 4/6), brownish yellow (10YR 6/8), light gray (10YR 7/2), light brownish gray (10YR 6/2), weak red (10R 4/4), and red (10R 5/6), sandy clay loam; moderate medium subangular blocky structure; very firm, very hard, moderately sticky, moderately plastic; many fine and medium and common coarse pores; 2 percent clay films; 10 percent ironstone nodules; 5 percent plinthite nodules; reticulated mottling; very strongly acid; clear wavy boundary.

Bt/C—62 to 80 inches; variegated matrix with dark red (10R 3/6), pale red (10R 6/4), strong brown (7.5YR 5/6), brownish yellow (10YR 6/8), and light brownish gray (10YR 6/2), sandy clay loam; moderate fine platy parting to moderate medium subangular blocky structure; very firm, very hard, slightly sticky, slightly plastic; common fine pores; very strongly acid.

Range in Characteristics

Solum thickness is more than 60 inches. Depth to horizon that contains more than 5 percent plinthite is 25 to 60 inches. Strongly cemented to indurated iron oxide concretions less than 2 centimeters in diameter range from 0 to 10 percent in the A horizons and 0 to 5 percent in the Bt horizon. CEC ranges from 8 to 15 milliequivalents per 10 grams of soil.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Texture is fine sandy loam. Reaction ranges from very strongly acid to moderately acid.

The E horizon has a hue of 10YR, value of 5 or 6, and chroma of 3 to 6. Texture is loamy fine sand, fine sandy loam, or sandy loam. Reaction ranges from very strongly acid to moderately acid.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma from 4 to 8. Mottles range from none to many, hues of 10R to 10YR, value of 4 to 7, and chroma from 3 to 8. Texture is sandy clay loam or clay loam, with a clay content ranging from 20 to 35 percent. Reaction is very strongly acid or strongly acid.

The Btv horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma from 4 to 8. Mottles range from few to many with hue of 7.5YR or 10YR, value of 6 or 7, and chroma from 1 to 3. The Btv horizon contains 5 to 20 percent plinthite in some part. Texture is sandy clay loam or clay loam, with a clay content ranging from 20 to 35 percent. Reaction is very strongly acid or strongly acid.

The Btv/C horizons have a variegated matrix color in shades of red, brown, yellow, and gray in a reticulate pattern. Texture is sandy clay loam or clay loam. The Btv/C horizon contains 5 to 20 percent plinthite in some part. Reaction is very strongly acid or strongly acid.

The Bt/C horizons have a variegated matrix color in shades of red, brown, yellow, and gray in a reticulate pattern. Texture is sandy clay loam or clay loam. Reaction is very strongly acid or strongly acid.

Plank Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Broad flats
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Geology: Lissie Formation
Drainage class: Poorly drained
Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Dallardsville soils are moderately well drained and are on mounds.
- Nona soils have a fine-silty control section.
- Sorter soils have a coarse-loamy control section.
- Waller soils have a fine-loamy control section.

Taxonomic Classification

Coarse-silty, siliceous, active, thermic Natric Vermaqualfs

Typical Pedon

Plank silt loam (fig. 27) in an area of Plank silt loam, 0 to 1 percent slopes; in Hardin County, Texas, located in Hardin County, Texas, from the intersection of U.S. Highway 69 and Farm Road 326 in Kountze, 7.3 miles north on U.S. Highway 69, and 200 feet east in pine plantation. Village Mills, Texas USGS Quadrangle. Latitude—30 degrees, 26 minutes, 43.00 seconds N., and Longitude—94 degrees, 23 minutes, 4.00 seconds W.

A—0 to 3 inches; grayish brown (10YR 5/2), silt loam; massive and weak medium subangular blocky; firm, hard; many coarse roots throughout and common very coarse roots throughout and many very fine to medium roots throughout; 2 percent by volume albic tongues; 95 percent by volume krotovinas; 10 percent distinct very dark gray (10YR 3/1) organic stains throughout; 30 percent fine cylindrical wormcasts throughout and 20 percent fine spherical weakly cemented grayish brown (10YR 5/2) worm nodules throughout; 95 percent of structure massive because of crayfish bioturbation; extremely acid; clear wavy boundary.

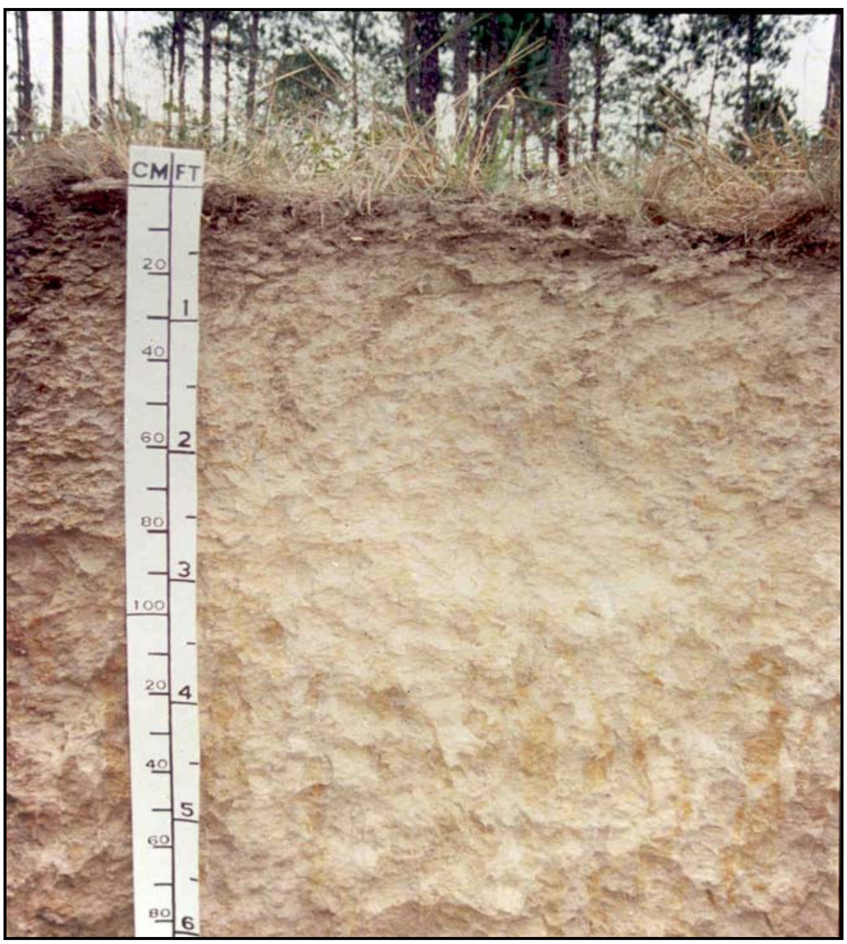

Figure 27.—Profile of Plank silt loam in an area of Plank silt loam, 0 to 1 percent slopes.

Bg1—3 to 24 inches; light brownish gray (10YR 6/2), silt loam; 15 percent fine and medium prominent yellow (10YR 7/6) and 10 percent fine prominent strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky and massive; firm, hard; common coarse roots throughout and many very fine to medium roots throughout; common coarse low continuity vesicular and many very fine to medium moderate continuity vesicular and tubular pores; 2 percent by volume albic tongues; 95 percent by volume krotovinas; 1 percent distinct very dark gray (10YR 3/1) organic stains in root channels and/or pores; 12 percent fine and medium distinct yellow (10YR 7/6) and 5 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 1 percent fine and medium prominent brown (7.5YR 4/4), 1 percent fine prominent light red (2.5YR 6/6), 1 percent fine prominent yellowish red (5YR 5/6), and 1 percent fine and medium prominent brown (7.5YR 5/4) masses of oxidized iron lining pores with sharp boundaries; 1 percent fine and medium prominent brown (7.5YR 5/4) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 1 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with diffuse boundaries; 2 percent fine cylindrical wormcasts throughout and 1 percent fine spherical weakly cemented grayish brown (10YR 5/2) worm nodules throughout; 95 percent of structure massive because of crayfish bioturbation; extremely acid; gradual wavy boundary.

Bg2—24 to 35 inches; light gray (10YR 7/2), silt loam; 20 percent fine and medium prominent yellow (10YR 7/6), 5 percent fine prominent reddish yellow (7.5YR 6/8), 5 percent fine and medium prominent brownish yellow (10YR 6/6), and 5 percent fine and medium prominent light red (2.5YR 7/6) mottles; massive and weak very coarse prismatic; very firm, very hard, weakly cemented, cemented by silica; common fine roots between peds; many fine and medium moderate continuity vesicular and tubular and common coarse low continuity vesicular pores; 5 percent by volume albic tongues; 70 percent by volume krotovinas; 8 percent fine and medium distinct brownish yellow (10YR 6/6), 8 percent fine and medium distinct yellow (10YR 7/6), 3 percent fine prominent reddish yellow (7.5YR 6/8), and 3 percent fine and medium prominent brown (7.5YR 5/4) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 2 percent fine and medium prominent light red (2.5YR 7/6) masses of oxidized iron on faces of peds with diffuse boundaries; 1 percent fine prominent brown (7.5YR 5/4) masses of oxidized iron lining pores with sharp boundaries; 70 percent of structure massive because of crayfish bioturbation; extremely acid; gradual wavy boundary.

Btg1—35 to 64 inches; grayish brown (10YR 5/2), silt loam; 25 percent fine and medium prominent strong brown (7.5YR 5/8), 5 percent fine and medium prominent brownish yellow (10YR 6/6), 5 percent fine and medium prominent brown (7.5YR 5/2), 3 percent fine prominent yellowish brown (10YR 5/8), and 2 percent fine prominent grayish brown (10YR 5/2) mottles; weak very coarse prismatic and massive; very firm, very hard, moderately cemented, cemented by silica; many fine and medium moderate continuity vesicular and tubular and common coarse moderate continuity vesicular pores; 10 percent by volume argillic tongues; 5 percent by volume albic tongues; 50 percent by volume krotovinas; 20 percent fine and medium prominent strong brown (7.5YR 5/8), 8 percent fine and medium distinct brownish yellow (10YR 6/6), and 5 percent fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 3 percent fine faint light brownish gray (10YR 6/2) iron depletions in matrix with

sharp boundaries; 1 percent fine prominent yellowish red (5YR 4/6) and 1 percent fine prominent brown (7.5YR 5/4) masses of oxidized iron lining pores with sharp boundaries; 50 percent of structure massive because of crayfish bioturbation; extremely acid; gradual wavy boundary.

Btg2—64 to 80 inches; light brownish gray (10YR 6/2); 5 percent fine and medium prominent brownish yellow (10YR 6/6), and 3 percent fine prominent strong brown (7.5YR 5/8), 2 percent fine prominent yellow (2.5Y 7/6) and 1 percent fine prominent light olive brown (2.5Y 5/3) mottles; weak very coarse prismatic structure; very firm, very hard, moderately cemented, cemented by silica; common fine to coarse low continuity vesicular pores; 25 percent by volume argillic tongues; 5 percent by volume albic tongues; 30 percent by volume krotovinas; 12 percent fine and medium distinct brownish yellow (10YR 6/6), 5 percent fine prominent yellow (2.5Y 7/6), 5 percent fine prominent strong brown (7.5YR 5/8), and 1 percent fine prominent light olive brown (2.5Y 5/3) masses of oxidized iron in matrix surrounding redox concentrations with diffuse boundaries; 3 percent fine and medium distinct brown (7.5YR 5/2) iron depletions in matrix with diffuse boundaries; 2 percent fine faint grayish brown (10YR 5/2) iron depletions in matrix; 36 percent is brittle material that is 4 to 10 inches wide with no brittle material in between; extremely acid.

Range in Characteristics

Solum thickness is more than 80 inches. Soil moisture is an udic soil moisture regime. The soil moisture control section is 4 to 12 inches. Mean annual soil temperature ranges from 69 to 72 degrees F. Particle-size control section (weighted average) clay content ranges from 10 to 15 percent. Sand larger than very fine sand content ranges from 5 to 15 percent. CEC to clay ratio ranges from 0.45 to 0.60. Aluminum saturation percent ranges from 60 to 90 percent.

The A horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 1 or 2. Texture is silt loam. Albic material ranges from 0 to 5 percent. Crawfish bioturbation ranges from 50 to 95 percent. Exchangeable sodium percentage ranges from 0 to 6. Reaction is extremely acid.

The Bg horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is very fine sandy loam, loam, or silt loam. Redoximorphic features in shades of red, brown, and yellow range from common to many. Albic material ranges from 0 to 5 percent. Crawfish bioturbation ranges from 50 to 95 percent. Exchangeable sodium percentage ranges from 6 to 11. Brittleness ranges from 0 to 5 percent. Reaction is extremely acid or very strongly acid.

The Btg horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is loam or silt loam. Redoximorphic features in shades of red, brown, yellow, and gray range from few to many. Albic material ranges from 0 to 15 percent. Crawfish bioturbation ranges from 30 to 75 percent. Exchangeable sodium percentage ranges from 10 to 25. Brittleness ranges from 25 to 50 percent. Reaction is extremely acid or very strongly acid. Barite threads or masses range from 2 to 15 percent.

The CBg horizon, where present, has hue of 5Y or 5G, value of 5 or 6, and chroma of 2. Texture is loam, silty clay loam, or clay. Redoximorphic features in shades of red, brown, yellow, and gray are few to common. Albic material ranges from 0 to 3 percent. Crawfish bioturbation ranges from 0 to 5 percent. Exchangeable sodium percentage ranges from 10 to 25. Brittleness ranges from 1 to 5 percent. Reaction is extremely acid or very strongly acid. Barite threads or masses range from 1 to 3 percent.

Pophers Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Inland dissected coastal plain
Landform: Microlow on flood plain
Parent material: Loamy alluvium
Geology: Quaternary alluvium
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Moderate
Slope: 0 to 1 percent

Associated Soils

- Koury soils are moderately well drained.
- Ozias soils have a fine control section.

Taxonomic Classification

Fine-silty, siliceous, active, acid, thermic Fluvaquentic Endoaquepts

Typical Pedon

Pophers silty clay loam in an area of Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded; from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 15.1 miles northwest on U.S. Highway 287 to Chester, 3.8 miles north on Farm Road 2097 to the end of pavement, 0.3 mile north on continuing on unpaved road; right (northeast) at "Y" 3.7 miles on County Road 2670, left (northeast) at "Y" 3.35 miles on woods road (through 2 gates), and 50 feet east of road in woods. Wolf Hill, Texas USGS Quadrangle; Latitude: 31 degrees, 2 minutes, 23.30 seconds N., and Longitude: 94 degrees, 32 minutes, 53.50 seconds W.

Ap—0 to 4 inches; dark brown (10YR 3/3), silty clay loam; weak fine subangular blocky structure; firm, moderately sticky, moderately plastic; very strongly acid; clear wavy boundary.

A—4 to 7 inches; brown (10YR 4/3), silty clay loam; weak fine subangular blocky structure; firm, moderately sticky, moderately plastic; very strongly acid; gradual wavy boundary.

Bg1—7 to 17 inches; grayish brown (10YR 5/2), silt loam; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; 2 percent medium distinct spherical weakly cemented iron-manganese masses between peds with sharp boundaries; 10 percent medium distinct brown (10YR 5/3) soft masses of oxidized iron; very strongly acid; gradual wavy boundary.

Bg2—17 to 33 inches; light brownish gray (10YR 6/2), silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 10 percent medium distinct dark yellowish brown (10YR 4/4) soft masses of oxidized iron; very strongly acid; gradual wavy boundary.

Bg3—33 to 42 inches; grayish brown (10YR 5/2), silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 1 percent medium distinct dark yellowish brown (10YR 4/4) soft masses of oxidized iron; very strongly acid; gradual wavy boundary.

Bg4—42 to 53 inches; grayish brown (10YR 5/2), silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; 1 percent

medium distinct brown (7.5YR 4/4) soft masses of oxidized iron; very strongly acid; gradual wavy boundary.

Bg5—53 to 80 inches; light brownish gray (10YR 6/2), silt loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; extremely acid.

Range in Characteristics

Solum thickness is more than 80 inches. The weighted average clay content of the particle-size control section ranges from 20 to 30 percent. Fine sand and coarser sand ranges from 4 to 15 percent. It is nonsaline to very slightly saline throughout the upper 40 inches, and very slightly saline to slightly saline below. The SAR ranges to 12 in the upper 40 inches and from 4 to 16 below. The organic carbon distribution is irregular between depths of 10 and 50 inches, or it is 0.2 percent or more at a depth of 50 inches.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 or 3. Where value is 3, the thickness is less than 10 inches. Texture is silty clay loam. Reaction ranges from very strongly acid to moderately acid.

The Bg, and Bgb horizons where present, have hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 or 2. Some buried A horizons have value of 3.The dominant subhorizons between a depth of 10 and 30 inches have value of 4 or 5 and chroma of 2. Redoximorphic features in shades of red, brown, yellow, and gray range from none to many. Texture is loam, silt loam, or silty clay loam. Iron-manganese masses and concretions range from few to 5 percent by volume in most pedons. Gypsum crystals in spots or masses range from few to 10 percent by volume, mainly in the lower subhorizons. Reaction ranges from extremely acid to strongly acid.

Rayburn Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Side slope or ridge on interfluve
Parent material: Acid tuffaceous siltstones and sandstones
Geology: Catahoula Formation
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Deep to bedrock (paralithic) layer
Shrink-swell potential: High
Slope: 1 to 15 percent

Associated Soils

- Browndell and Kitterll soils are on associated convex slopes.
- Corrigan soils are on slightly lower plane and concave positions.

Taxonomic Classification

Fine, smectitic, thermic Vertic Hapludalfs

Typical Pedon

Rayburn loam in an area of Rayburn loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 15 miles northwest on U.S. Highway 287 to Chester; 7.2 miles north and east on Farm Road 1745, 3.0 miles northeast on County Road 2845 (Fort Tehran road), at "Y" bear right (through gate) 0.1 mile on woods road, 0.2 mile north on adjoining woods lane, and 30 feet west of lane. Colmesneil, Texas USGS Quadrangle; Latitude—30 degrees,

59 minutes, 29.80 seconds N., and Longitude—94 degrees, 28 minutes, 49.70 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3), loam; weak medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; moderately acid; abrupt wavy boundary.

Bt1—6 to 12 inches; dark red (2.5YR 3/6), clay; moderate fine and medium subangular blocky structure; firm, hard, very sticky, very plastic; 5 percent discontinuous clay films; very strongly acid; gradual wavy boundary.

Bt2—12 to 27 inches; 35 percent dark reddish brown (2.5YR 3/4), 35 percent gray (10YR 6/1), 15 percent (5YR 3/6), and 15 percent reddish brown (5YR 4/4), clay; moderate fine and medium subangular blocky structure; very firm, very hard, very sticky, very plastic; 20 percent discontinuous clay films and 25 percent discontinuous pressure faces; very strongly acid; clear wavy boundary.

Bt3—27 to 40 inches; light brownish gray (10YR 6/2) clay; massive; very sticky and plastic; 5 percent discontinuous clay films; 5 percent fine and medium distinct threadlike red (2.5YR 4/6) masses of oxidized iron; very strongly acid; clear smooth boundary.

Cr—40 to 50 inches; light brownish gray (2.5Y 6/2) strongly cemented tuffaceous siltstone with texture of silty clay; extremely acid.

Range in Characteristics

Solum thickness and depth to paralithic contact is 40 to 60 inches. Base saturation above the paralithic contact is 35 to 60 percent. The COLE is 0.09 to 0.14 in the Bt horizon.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 1 to 3. Where moist values are less than 3.5, the A horizon is less than 6 inches thick. Texture is fine sandy loam or loam. Reaction ranges from very strongly acid to moderately acid.

The E horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 or 3. Texture is fine sandy loam or loam. Reaction ranges from very strongly acid to moderately acid.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 3 to 8. Redoximorphic features in shades of brown or gray range from none to few. Texture is clay or silty clay. Reaction ranges from extremely acid to strongly acid.

The lower part of the Bt horizon and the BC horizon, has hue of 10R to 5Y, value of 3 to 6, and chroma of 2 or 3. Redoximorphic features in shades of red and brown range from common to many in the upper part. Redoximorphic features in shades of yellow, brown, or gray range from few to common in the lower part. Texture is clay or silty clay. Clay content of the upper 20 inches averages 40 to 60 percent. Reaction ranges from extremely acid to strongly acid.

The C horizon, where present, has hue of 10YR to 5Y, value of 5 or 6, and chroma of 2 or 3. Redoximorphic features in shades of red and brown range from common to many in the upper part. Redoximorphic features in shades of yellow, brown, and gray range from few to common in the lower part. Texture is clay or silty clay. Reaction ranges from extremely acid to strongly acid.

The Cr horizon is has hue of 10YR to 5Y, value of 5 or 6, and chroma of 2 or 3. It is weakly to strongly cemented tuffaceous siltstone and sandstone that is bentonitic, but contains volcanic ash, volcanic glass, and other pyroclastic material. It ranges from extremely acid to moderately acid.

Redco Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Summit or side slope on interfluve
Parent material: Clayey sediments
Geology: Fleming Formation
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Very high
Slope: 1 to 3 percent, and 5 to 15 percent

Associated Soils

- Burkeville and Wiergate soils have a black clayey surface layer.
- Woodville soils have at least 5 inches of loamy surface.

Taxonomic Classification

Very-fine, smectitic, thermic Chromic Dystruderts

Typical Pedon

Redco clay in an area of Redco clay, 1 to 3 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 5.5 miles west on U.S. Highway 287, 1.8 miles north on woods road, 350 feet west along property boundary, and 55 feet south of boundary in woods. Woodville, Texas USGS Quadrangle; Latitude—30 degrees, 51 minutes, 10.30 seconds N., and Longitude—94 degrees, 29 minutes, 29.00 seconds W.

A—0 to 5 inches; brown (10YR 4/3), clay; weak fine subangular blocky structure; firm, hard, very sticky, very plastic; very strongly acid; gradual wavy boundary.

Bss1—5 to 10 inches; grayish brown (10YR 5/2), clay; 25 percent fine and medium distinct red (2.5YR 4/8) and 15 percent medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; very firm, very hard, very sticky, very plastic; 1 percent slickensides (pedogenic); very strongly acid; gradual wavy boundary.

Bss2—10 to 18 inches; light gray (10YR 7/2), clay; 5 percent medium distinct brownish yellow (10YR 6/6) and 5 percent medium prominent red (2.5YR 4/8) mottles; massive; very firm, extremely hard, very sticky, very plastic; 5 percent slickensides (pedogenic); very strongly acid; gradual wavy boundary.

Bss3—18 to 44 inches; light gray (10YR 7/2), clay; 1 percent fine prominent red (2.5YR 4/8) and 1 percent medium prominent yellowish red (5YR 5/8) and 1 percent medium distinct brownish yellow (10YR 6/6) mottles; massive; very firm, extremely hard, very sticky, very plastic; 10 percent slickensides (pedogenic); very strongly acid; gradual wavy boundary.

Bss4—44 to 80 inches; light gray (10YR 7/2), clay; 5 percent fine distinct yellowish brown (10YR 5/8) mottles; massive; very firm, extremely hard, very sticky, very plastic; 15 percent slickensides (pedogenic); 1 percent fine barite crystals; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The weighted average clay content of the particle-size control section ranges from 60 to 70 percent. When dry, cracks 1/2-

to more than 1 inch wide extend from the surface to a depth of more than 12 inches. Cracks remain open from 60 to 90 cumulative days in most years. Slickensides and wedge-shaped peds begin at a depth within 24 inches. Undisturbed areas gave gilgai microrelief with microhighs about 4 to 12 inches above the microlow. Distance from the center of the microhigh to the center of the microlow ranges from 8 to 15 feet. Colors with chroma of 2 or less in the subsoil are considered to be lithochromic. Mottles with chroma of 3 or more, or redox concentrations, are considered to be relict or lithochromic.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Mottles in shades of red, brown, or yellow range from none to common. Reaction ranges from strongly acid to slightly acid.

The upper Bss horizon has hue of 2.5YR or 10YR, value of 5 to 7, and chroma of 2 to 4. Mottles range from few to many in shades of red, brown, yellow, and olive. Texture is clay or silty clay. Reaction is very strongly acid to moderately acid.

The lower Bss horizon has hue of 2.5YR or 10YR, value of 5 to 7, and chroma of 2 to 4. Texture is clay or silty clay. Concretions of calcium carbonate range from none to common. The reaction is moderately acid to slightly alkaline.

Rogan Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Ridge on interfluve
Parent material: Loamy sediments
Geology: Willis Formation
Drainage class: Moderately well drained
Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 5 percent

Associated Soils

- Doucette soils have sandy epipedons more than 20 inches thick.
- Pinetucky soils are on similar landscape positions, but contain less than 15 percent iron oxide concretions in the A horizon.
- Stringtown soils occur on steep side slopes and have clay content in the Bt horizon that decreases within 60 inches of the surface.
- Urland soils are on slightly higher smooth slopes, contain less than 5 percent plinthite, and have red hues.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Plinthic Paleudults

Typical Pedon

Rogan gravelly fine sandy loam in an area of Rogan gravelly fine sandy loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 8.0 miles west on U.S. Highway 190, 3.4 miles south on woods road, 0.15 mile west on adjoining woods road, 150 feet south on lane, and 20 feet west in woods. Jacks Creek North, Texas USGS Quadrangle; Latitude—30 degrees, 42 minutes, 36.80 seconds N., and Longitude—94 degrees, 31 minutes, 37.50 seconds W.

A—0 to 4 inches; brown (10YR 4/3), gravelly fine sandy loam; weak fine subangular blocky structure; very friable, loose; 20 percent ironstone nodules; moderately acid; clear smooth boundary.

E1—4 to 14 inches; pale brown (10YR 6/3), gravelly fine sandy loam; weak fine subangular blocky structure; very friable, loose; 18 percent ironstone nodules; moderately acid; clear wavy boundary.

E2—14 to 20 inches; very pale brown (10YR 7/4), gravelly fine sandy loam; weak fine subangular blocky structure; friable, slightly hard; 25 percent ironstone nodules; moderately acid; clear wavy boundary.

Bt1—20 to 29 inches; yellowish red (5YR 5/8), gravelly sandy clay loam; weak fine subangular blocky structure; friable, hard; 20 percent sub rounded 0.1- to 0.4-inch ironstone nodules; strongly acid; gradual wavy boundary.

Bt2—29 to 38 inches; reddish yellow (7.5YR 6/6), sandy clay loam; 35 percent medium prominent red (2.5YR 5/8) and 30 percent medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable, hard; very strongly acid; gradual wavy boundary.

Btv1—38 to 46 inches; yellowish brown (10YR 5/8), sandy clay loam; 35 percent medium prominent red (2.5YR 4/6) and 30 percent medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm, hard; 10 percent prominent plinthite nodules; very strongly acid; gradual wavy boundary.

Btv2—46 to 52 inches; brownish yellow (10YR 6/8), sandy clay loam; moderate medium subangular blocky structure; firm, hard; 8 percent prominent plinthite nodules; very strongly acid; gradual wavy boundary.

Btv3—52 to 61 inches; brownish yellow (10YR 6/8), sandy clay loam; moderate medium subangular blocky structure; firm, hard; 25 percent prominent plinthite nodules; very strongly acid; gradual wavy boundary.

Btv4—61 to 80 inches; 40 percent brownish yellow (10YR 6/8) and 25 percent dark yellowish brown (10YR 3/6), clay loam; many medium coarse light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; firm, hard; 10 percent prominent plinthite nodules; very strongly acid.

Range in Characteristics

Solum thickness ranges from 60 to more than 80 inches. Depth to horizons that contain more than 5 percent plinthite ranges from 25 to 58 inches. Strongly cemented to indurated iron oxide concretions less than 2 centimeters in diameter range from 15 to 35 percent in the A horizons, from 10 to 35 percent in the upper Bt horizon and from 0 to 10 percent in the lower Bt horizon.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. Texture is gravelly fine sandy loam. Reaction is strongly acid or moderately acid.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 or 4. Texture is gravelly fine sandy loam. Reaction is strongly acid or moderately acid.

The Bt horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma from 4 to 8. Mottles in shades of red, brown, and yellow range from none to many. Texture is sandy clay loam, clay loam or their gravelly counterparts. Reaction is very strongly acid or strongly acid.

The Btv horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8. Mottles in shades of red, brown, yellow, and gray range from few to many. Texture is sandy clay loam, clay loam or their gravelly counterparts. Plinthite content is more than 5 percent. Reaction is very strongly acid or strongly acid.

Sawlit Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Interfluve
Microrelief: Microlow
Parent material: Loamy and clayey sediments of Pleistocene age
Geology: Pleistocene age sediments
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 1 to 3 percent

Associated Soils

- Alazan have aquic conditions in the upper subsoil.

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Glossaquic Paleudalfs

Typical Pedon

Sawlit loam in an area of Sawlit-Sawtown complex, 1 to 3 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 5 miles east on U.S. Highway 190, 1.1 miles south and east on County Road 4040, 2.1 miles north and east on County Road 4210, bear right at "Y" through pipe-gate on adjoining road 1.0 mile, and 100 feet north in clear-cut to site. Birdwell Lake, Texas USGS Quadrangle; Latitude—30 degrees, 48 minutes, 32.70 seconds N., and Longitude—94 degrees, 17 minutes, 14.20 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2), loam; weak medium subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; many fine roots and many medium roots and common coarse roots; common fine and common medium pores; 5 percent fine distinct light yellowish brown (10YR 6/4) wormcasts; very strongly acid; clear wavy boundary.

E—9 to 12 inches; light yellowish brown (10YR 6/4), loam; moderate medium subangular blocky structure; very friable, hard, nonsticky, nonplastic; many fine roots and common medium roots and common coarse roots; common fine and common medium pores; 25 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron; 2 percent fine distinct light brownish gray (10YR 6/2) masses of reduced iron; very strongly acid; clear wavy boundary.

Bt/E—12 to 25 inches; 25 percent reddish yellow (7.5YR 6/8), 20 percent light brownish gray (10YR 6/2), 15 percent light yellowish brown (10YR 6/4), and 15 percent grayish brown (10YR 5/2), sandy clay loam; moderate medium subangular blocky structure; firm, very hard, slightly sticky, slightly plastic; common fine roots and common medium roots; common fine and common medium pores; 15 percent continuous clay films; 10 percent fine distinct yellowish red (5YR 5/8), 10 percent medium prominent brown (7.5YR 5/4), and 5 percent fine distinct yellowish brown (10YR 5/8) masses of oxidized iron; 15 percent light yellowish brown (10YR 6/4) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

2Bt/E1—25 to 31 inches; 60 percent light brownish gray (10YR 6/2) and 20 percent gray (10YR 6/1), clay loam; moderate medium prismatic structure

parting to weak medium subangular blocky; firm, very hard, moderately sticky, moderately plastic; many fine roots and many medium roots; common fine pores; 10 percent discontinuous clay films; 10 percent fine distinct strong brown (7.5YR 5/6) and 10 percent fine and medium prominent red (2.5YR 4/8) masses of oxidized iron; 2 percent fine prominent red (10R 4/6) iron-manganese masses; 20 percent light gray (10YR 6/1) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

2Bt/E2—31 to 43 inches; 50 percent light brownish gray (10YR 6/2) and 30 percent light gray (10YR 7/1), clay loam; moderate medium prismatic structure parting to weak medium subangular blocky; very firm, very hard, moderately sticky, moderately plastic; many fine roots and many medium roots; common fine pores; 5 percent discontinuous clay films; 10 percent fine and medium prominent red (2.5YR 4/8), 2 percent fine prominent red (10R 4/6) and 2 percent fine and medium distinct yellowish brown (10YR 5/4) masses of oxidized iron; 30 percent light gray (10YR 7/1) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

2Btss/E1—43 to 57 inches; 40 percent gray (10YR 6/1) and 25 percent light gray (10YR 7/1), clay; moderate medium prismatic structure parting to weak medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; common coarse roots; 5 percent discontinuous clay films; 20 percent medium and coarse prominent red (2.5YR 4/6) and 10 percent fine and medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; 2 percent fine prominent reddish brown (2.5YR 4/4) iron-manganese masses; 25 percent light gray (10YR 7/1) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

2Btss/E2—57 to 80 inches; 35 percent light gray (10YR 7/1) and 20 percent light gray (10YR 7/1), clay; weak medium prismatic structure parting to weak medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; 5 percent discontinuous clay films; 20 percent fine and medium distinct brownish yellow (10YR 6/8) and 20 percent medium and coarse prominent dark reddish brown (2.5YR 3/4) masses of oxidized iron; 2 percent medium prominent dark reddish brown (2.5YR 3/4) iron-manganese masses; 20 percent light gray (10YR 7/1) above is fine sandy loam (E) material; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Base saturation ranges from 45 to 75 percent at 50 inches below the top of the argillic horizon. Thickness of the ochric epipedon ranges from 7 to 20 inches. Depth to the clayey discontinuity (2Bt horizon) ranges from 26 to 40 inches. Average clay content of the control section ranges from 25 to 35 percent. Weighted average fine sand and coarser in the particle-size control section ranges from 15 to 30 percent.

The A horizon has hue of 7.5YR or 10YR, value 3 to 5, and chroma of 2 or 3. Iron stains along root channels range from none to few with colors in shades of red or brown. Texture is fine sandy loam or loam. Rounded ironstone and/or quartzite pebbles range from none to few. Reaction ranges from very strongly acid to moderately acid unless limed.

The E horizon has hue of 7.5YR or 10YR, value 5 to 7, and chroma of 3 or 4. Redoximorphic features in shades of red and brown range from none to common. Texture is fine sandy loam, very fine sandy loam, or loam. Rounded ironstone and/or quartzite pebbles range from none to few. Reaction ranges from very strongly acid to moderately acid unless limed.

The Bt horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6 and chroma of 6 or 8. Redoximorphic features in shades of red, brown, yellow, and gray

range from few to common. Texture is loam, sandy clay loam, or clay loam. Rounded ironstone and/or quartzite pebbles range from 0 to 4 percent. Reaction ranges from very strongly acid to moderately acid.

The Bt/E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. Redoximorphic features in shades of red, brown, and gray range from few to many. Texture is loam, sandy clay loam, or clay loam. Albic materials (E) range from 15 to 35 percent. Brittle peds range from 0 to 15 percent. Rounded ironstone and/or quartzite pebbles range from 0 to 4 percent. Reaction ranges from very strongly acid to moderately acid.

The 2Bt horizon, where present, has hue of 7.5YR or 10YR, value 5 or 6, and chroma of 1 to 6. Redoximorphic features in shades of red, brown, yellow, and gray range from few to many or the matrix is variegated in these colors. Albic materials range from 0 to 4 percent. Texture is clay loam or clay with 35 to 50 percent clay. The clay content is less than 35 percent and texture is clay loam or sandy clay loam below a depth of 60 inches in some pedons. Reaction ranges from extremely acid to strongly acid. Crystals of gypsum and/or fine masses of barite range from none to common.

The 2Btss or 2Btss/E horizon has hue of 7.5YR or 10YR, value 5 or 6, and chroma of 1 to 6. Redoximorphic features in shades of red, brown, yellow, and gray range from few to many or the matrix is variegated in these colors. Albic materials range from 0 to 4 percent. Texture is clay. Slickensides range from few to common. Reaction ranges from extremely acid to strongly acid.

Sawtown Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Mounds on interfluve
Parent material: Loamy alluvial sediments over Tertiary age clayey deposits
Geology: Pleistocene age sediments over Tertiary age deposits
Drainage class: Well drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: High
Slope: 1 to 3 percent

Associated Soils

- Alazan have aquic conditions in the upper subsoil.
- Woodville soils are clayey in the control section.

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Oxyaquic Paleudalfs

Typical Pedon

Sawtown fine sandy loam in an area of Sawlit-Sawtown complex, 1 to 3 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 5 miles east on U.S. Highway 190, 1.1 mile south and east on County Road 4040, 2.1 miles north and east on County Road 4210, bear right at "Y" through pipe-gate, 0.85 mile southeast, and 100 feet north in clear-cut area to site. Birdwell Lake, Texas USGS Quadrangle; Latitude—30 degrees, 48 minutes, 36.00 seconds N., and Longitude—94 degrees, 17 minutes, 21.40 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3), fine sandy loam; weak fine subangular blocky structure; very friable, soft; many fine roots and many medium roots; moderately acid; clear wavy boundary.

E1—8 to 17 inches; very pale brown (10YR 7/3), fine sandy loam; 2 percent fine faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; very friable, slightly hard; many fine roots and many medium roots; 2 percent fine distinct dark brown (10YR 3/3) iron-manganese masses; moderately acid; clear wavy boundary.

E2—17 to 19 inches; very pale brown (10YR 7/3), fine sandy loam; 2 percent fine faint yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; very friable, slightly hard; many fine roots and many medium roots; 2 percent fine distinct dark yellowish brown (10YR 4/4) iron-manganese masses; moderately acid; clear wavy boundary.

Bt—19 to 36 inches; yellowish brown (10YR 5/6), sandy clay loam; moderate medium subangular blocky structure; friable, hard; many fine roots and many medium roots; many fine tubular and many medium tubular pores; 2 percent distinct light yellowish brown (10YR 6/4) skeletons and 15 percent continuous clay films; 2 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron; very strongly acid; clear wavy boundary.

Bt/E1—36 to 49 inches; yellowish brown (10YR 5/4), sandy clay loam; moderate medium subangular blocky structure; firm, hard; many fine roots and many medium roots; many fine tubular and many medium tubular pores; 10 percent discontinuous clay films; and 15 percent pale brown (10YR 6/3) skeletons on vertical faces of peds; 10 percent medium distinct strong brown (7.5YR 5/6), 2 percent fine prominent yellowish red (5YR 5/8) and 2 percent fine distinct red (2.5YR 4/6) masses of oxidized iron; 15 percent pale brown (10YR 6/3) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

2Bt/E2—49 to 60 inches; 55 percent yellowish brown (10YR 5/6) and 25 percent light gray (10YR 7/2), clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, hard; common fine roots and common medium roots; many fine tubular and many medium tubular pores; 10 percent discontinuous clay films; and 25 percent distinct light gray (10YR 7/2) skeletons on vertical faces of peds and 25 percent distinct light yellowish brown (10YR 6/4) skeletons; 10 percent medium distinct light brownish gray (10YR 6/2) masses of reduced iron; 10 percent medium prominent red (2.5YR 4/8) masses of oxidized iron; 25 percent light gray (10YR 7/2) above is fine sandy loam (E) material; very strongly acid; gradual wavy boundary.

2Bt/E3—60 to 80 inches; 35 percent yellowish brown (10YR 5/6) and 35 percent light gray (10YR 7/1), clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, hard; common fine roots and common medium roots; many fine tubular and many medium tubular pores; 5 percent discontinuous clay films; and 30 percent light gray (10YR 7/1) skeletons on vertical faces of peds; 15 percent fine and medium prominent dark red (2.5YR 3/6) and 5 percent medium prominent red (2.5YR 4/6) masses of oxidized iron; 10 percent medium distinct light brownish gray (10YR 6/2) masses of reduced iron; 5 percent medium prominent iron-manganese masses; 25 percent light gray (10YR 7/1) above is fine sandy loam (E) material; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Base saturation ranges from 45 to 80 percent at 50 inches below the top of the argillic horizon. The average clay content of the control section ranges from 18 to 27 percent. Depth to the clayey discontinuity

ranges from 40 to 60 inches. Thickness of the ochric epipedon ranges from 15 to 35 inches. Thickness of the glossic horizon is more than 20 inches.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 or 3. Where value is 3, the thickness is less than 7 inches. Texture is fine sandy loam. Rounded ironstone or quartzite pebbles range from none to few. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue 7.5YR or 10YR, value of 5 to 7, and chroma of 2 to 4. Texture is fine sandy loam, very fine sandy loam, or loam. Rounded ironstone or quartzite pebbles range from none to few. Reaction ranges from very strongly acid to moderately acid.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. Redoximorphic features in shades of red, brown, or yellow range from none to common. Texture is loam, sandy clay loam, or clay loam. Brittle peds range from none to about 15 percent by volume. Rounded ironstone or quartzite pebbles range from none to about 4 percent. Reaction ranges from extremely acid to moderately acid.

The Bt/E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8 in the Bt parts. It contains 5 to 25 percent albic materials (E parts). Redoximorphic features in shades of red, brown, or yellow range from none to common, and iron or clay depletions in shades of gray range from none to few. Texture is loam, sandy clay loam, or clay loam. Brittle peds range from none to about 15 percent by volume. Rounded ironstone or quartzite pebbles range from none to about 4 percent. Reaction ranges from extremely acid to moderately acid.

The 2Bt/E horizon has hue of 7.5YR or 10YR, value of 4 to 8, and chroma of 1 or 6. Redoximorphic features in shades of red, brown, or yellow and iron depletions in shades of gray range from few to many. Some pedons have a 2Bt/E horizon that is variegated with these colors. Streaks and pockets of albic materials range from 15 to 25 percent. Texture is clay loam or clay. In some pedons however, the clay content is less than 35 percent and texture is clay loam, sandy clay loam, or fine sandy loam below a depth of 60 inches. Gypsum crystals and/or fine masses of barite range from none to common. Reaction ranges from extremely acid to slightly acid.

The 2Btg/E horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 1 or 2. Redoximorphic features in shades of red, brown, or yellow, and iron depletions in shades of gray range from few to many. Streaks and pockets of albic materials range from 15 to 25 percent. Texture is clay loam or clay. In some pedons however, the clay content is less than 35 percent and texture is clay loam, sandy clay loam, or fine sandy loam below a depth of 60 inches. Gypsum crystals and/or fine masses of barite range from none to common. Reaction ranges from extremely acid to slightly acid.

A 2Btg or 2BCg horizon, where present, has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 1 or 2. Redoximorphic features in shades of red, brown, or yellow, and iron depletions in shades of gray range from few to many. Some pedons have a 2Bt horizon that is variegated with these colors. Texture is clay loam or clay. In some pedons however, the clay content is less than 35 percent and texture is clay loam, sandy clay loam, or fine sandy loam. Gypsum crystals and/or fine masses of barite range from none to common. Reaction ranges from extremely acid to slightly acid.

Shankler Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Side slope or ridge on interfluve
Parent material: Sandy coastal plain sediments of Pleistocene age

Geology: Willis Formation
Drainage class: Well drained
Slowest permeability: Moderate
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 15 percent

Associated Soils

- Choates soils are somewhat poorly drained and are plinthic.
- Doucette and Boykin soils have sandy epipedons less than 40 inches thick.
- Newco and Urland soils have a fine control section.
- Pinetucky soils do not have thick sandy surfaces.

Taxonomic Classification

Loamy, siliceous, semiactive, thermic Grossarenic Paleudults

Typical Pedon

Shankler loamy sand in an area of Shankler loamy sand, 1 to 8 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 2.9 miles west on U.S. Highway 190, 0.9 mile south and southwest on County Road 1100, 2.1 miles south on International Paper Seed Orchard Road, and 75 feet east on woods. Hillister, Texas USGS Quadrangle; Latitude—30 degrees, 43 minutes, 41.70 seconds N., and Longitude—94 degrees, 28 minutes, 2.90 seconds W.

A—0 to 6 inches; dark grayish brown (10YR 4/2), loamy sand; single grain; loose, nonsticky, nonplastic; clear smooth boundary; strongly acid.

E1—6 to 16 inches; brown (10YR 5/3), loamy sand; single grain; loose, nonsticky, nonplastic; gradual wavy boundary; strongly acid.

E2—16 to 30 inches; pale brown (10YR 6/3), loamy sand; single grain; loose, nonsticky, nonplastic; 2 percent fine distinct brownish yellow (10YR 6/6) masses of oxidized iron; gradual wavy boundary; strongly acid.

E3—30 to 41 inches; very pale brown (10YR 7/3), loamy sand; single grain; loose, nonsticky, nonplastic; 1 percent by volume lamellae; gradual wavy boundary; strongly acid.

E/Bt1—41 to 48 inches; 95 percent very pale brown (10YR 7/3) and 5 percent yellowish brown (10YR 5/4), loamy fine sand; single grain; very friable, loose, nonsticky, nonplastic; 1 percent by volume lamellae; gradual wavy boundary; strongly acid.

E/Bt2—48 to 52 inches; 90 percent very pale brown (10YR 7/3) and 10 percent light yellowish brown (10YR 6/4), loamy fine sand; single grain; very friable, loose, nonsticky, nonplastic; clear wavy boundary; strongly acid.

Bt1—52 to 60 inches; yellowish red (5YR 5/8), fine sandy loam; moderate medium subangular blocky structure; firm, hard, moderately sticky, moderately plastic; 25 percent medium faint yellowish red (5YR 5/6) masses of oxidized iron; gradual wavy boundary; very strongly acid.

Bt2—60 to 80 inches; red (2.5YR 4/8), sandy clay loam; firm, hard, moderately sticky, moderately plastic; 2 percent fine distinct reddish yellow (7.5YR 6/8) masses of oxidized iron; 2 percent fine faint yellowish red (5YR 5/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Thickness of the A and E horizons ranges from 40 to 60 inches. Base saturation at 72 inches ranges from 8 to 25 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Where value is 3, the horizon is less than 6 inches thick. Texture is loamy sand. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. Texture is fine sand, loamy sand, or loamy fine sand. Reaction ranges from very strongly acid to slightly acid.

The E/Bt horizon, where present, has hue of 10YR, value of 5 through 7, and chroma of 3 and 4. Texture is loamy fine sand or fine sand. Reaction ranges from slightly acid to very strongly acid.

The Bt horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. Red and brown mottles range from none to common. Texture is sandy loam, fine sandy loam, or sandy clay loam. The average clay content in the upper 20 inches ranges from 18 to 35 percent. Reaction is very strongly acid or strongly acid. Plinthite in the Bt horizons ranges from 0 to about 4 percent.

Silsbee Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Hill slope
Parent material: Loamy sediments of the Lissie Formation
Geology: Lisse Formation
Drainage class: Well drained
Slowest permeability: Moderately slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 3 to 12 percent

Associated Soils

- Kirbyville soils are moderately well drained and are on lower positions.
- Otanya soils have subsoil that has hue of 5YR and are on similar to lower positions.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Silsbee fine sandy loam (fig. 28) in an area of Silsbee fine sandy loam, 5 to 12 percent slopes; in Hardin County, Texas, located from the intersection of Farm Road 418 and Farm Road 1122 in Silsbee, 0.4 mile northwest on Farm Road 418 to county road, 0.1 mile north and 1.9 mile northwest on county road to forest road, 0.7 mile west on forest road, and 75 feet north in forest. Deserter Baygall, Texas USGS Quadrangle; Latitude—30 degrees, 25 minutes, 26.00 seconds N., and Longitude—94 degrees, 14 minutes, 34.10 seconds W.

A—0 to 5 inches; brown (10YR 5/3), fine sandy loam; moderate medium granular structure; friable, soft; many very fine to coarse roots throughout; many fine and medium pores; very strongly acid; clear smooth boundary.

E—5 to 15 inches; 80 percent light yellowish brown (10YR 6/4) and 20 percent pale brown (10YR 6/3), fine sandy loam; moderate medium subangular blocky structure; friable, slightly hard; common coarse roots throughout and many very fine to medium roots throughout; many fine and common medium pores; very strongly acid; clear smooth boundary.

Figure 28.—Profile of Silsbee fine sandy loam, 5 to 15 percent slopes. The continuous red colors indicate this soil is well drained.

Bt1—15 to 30 inches; yellowish red (5YR 5/8), sandy clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, hard; many fine and medium roots; common very fine and fine pores; 5 percent distinct yellowish red (5YR 4/6) clay films on faces of peds; 3 percent fine ironstone nodules throughout; strongly acid; gradual smooth boundary.

Bt2—30 to 49 inches; yellowish red (5YR 5/6), sandy clay loam; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; firm, hard; common very fine and fine roots throughout; common very fine and fine pores; 4 percent faint yellowish red (5YR 4/6) clay films on faces of peds and 4 percent faint yellowish red (5YR 5/8) clay films on faces of peds; 3 percent fine ironstone nodules; strongly acid; gradual wavy boundary.

Bt3—49 to 58 inches; strong brown (7.5YR 5/8), sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm, hard; common fine and medium roots throughout; common very fine pores; 2 percent prominent yellowish red (5YR 4/6) clay films on faces of peds and 2 percent distinct yellowish red (5YR 5/8) clay films on faces of peds; 1 percent fine red (2.5YR 4/6) masses of oxidized iron; 1 percent fine plinthite nodules; strongly acid; gradual wavy boundary.

Bt4—58 to 71 inches; strong brown (7.5YR 5/8), sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm, hard; common very fine and fine roots throughout; common very fine pores; 1 percent discontinuous distinct yellowish red (5YR 5/8) clay films on faces of peds and 5 percent discontinuous distinct yellowish red (5YR 4/6) clay films on faces of peds; 3 percent fine spherical red (2.5YR 4/6) plinthite nodules; 1 percent fine red (2.5YR 4/6) masses of oxidized iron between peds; strongly acid; gradual wavy boundary.

Bt5—71 to 80 inches; strong brown (7.5YR 5/6), sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm, hard; common very fine roots throughout; common fine and medium pores; 2 percent distinct strong brown (7.5YR 5/6) clay films on faces of peds; 3 percent fine plinthite nodules; 2 percent fine red (2.5YR 4/6) masses of oxidized iron throughout; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content of the particle-size control section is 18 to 30 percent. Base saturation ranges from 25 to 35 percent. Reaction ranges from extremely acid to strongly acid throughout.

The A horizon has hue 10YR, value of 4 to 6, and chroma of 3 or 4. Texture is fine sandy loam.

The E horizon has hue 10YR, value of 5 to 7, and chroma of 3 or 4. Texture is fine sandy loam or very fine sandy loam.

The upper Bt horizon has hue 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. Texture is loam, sandy clay loam, or clay loam.

The lower Bt horizon has hue of 5YR or 7.5YR, value of 5 to 7, and chroma of 6 or 8. Texture is fine sandy loam, loam, or sandy clay loam. Redoximorphic features in shades of red, yellow, and brown are few to many. Plinthite ranges from 1 to 4 percent.

Sorter Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Flats
Parent material: Loamy fluviomarine deposits of early Pleistocene age
Geology: Lissie Formation
Drainage class: Poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Kountze soils are moderately well drained and on higher positions.
- Plank soils have a coarse-silty particle-size control section and are on similar positions.
- Waller soils have a fine-loamy particle-size control section.

Taxonomic Classification

Coarse-loamy, siliceous, superactive, thermic Natric Vermaqualfs

Typical Pedon

Sorter very fine sandy loam (fig. 29) in an area of Sorter-Dallardsville complex, 0 to 1 percent slopes; located from the intersection of Farm Road 1003 and Farm Road 1293 in Honey Island, Texas, 3.7 miles west on Farm Road 1293 to county road, 0.3 mile north on county road, and 0.1 mile west on county road, 0.65 mile north on county road to forest road, 0.2 mile west on forest road, and 40 feet north of road in clear-cut. Bragg, Texas USGS Quadrangle; Latitude—30 degrees 25 minutes 10.0 seconds N., and Longitude—94 degrees 30 minutes 13.0 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2), very fine sandy loam; moderate fine and medium granular structure; friable, hard, nonsticky, nonplastic; many fine and medium roots and common coarse roots; many fine and medium pores; 10 percent by volume krotovinas; 3 percent fine faint brown (10YR 4/3) masses of oxidized iron lining pores with clear boundaries; extremely acid; abrupt smooth boundary.

Bg1—3 to 24 inches; gray (10YR 5/1), very fine sandy loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm, hard, nonsticky, nonplastic; few very fine roots; common fine and medium pores; 5 percent by volume albic tongues; 95 percent by volume krotovinas; 8 percent fine prominent reddish yellow (7.5YR 6/8) masses of oxidized iron throughout with diffuse boundaries; 7 percent fine prominent yellowish red (5YR 4/6) masses of oxidized iron lining pores with sharp boundaries; 2 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 5 percent brittleness in krotovinas; 50 percent krotovinas are fresh, yellowish brown (10YR 5/4) and very pale brown (10YR 8/3) layered cups; 50 percent of krotovinas are old, grayish brown (10YR 5/2) and pink (7.5YR 7/3); very strongly acid; diffuse wavy boundary.

Bg2—24 to 41 inches; gray (10YR 6/1), very fine sandy loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm, hard, nonsticky, nonplastic; few very fine roots; common fine and medium pores; 5 percent by volume albic tongues; 95 percent by volume krotovinas; 12 percent medium and coarse prominent brownish yellow (10YR 6/8) masses of oxidized iron on faces of peds with diffuse boundaries; 8 percent fine and medium prominent reddish yellow (7.5YR 6/8) masses of oxidized iron on faces of peds with clear boundaries; 1 percent fine prominent pale green (5G 6/2) iron depletions lining pores with sharp boundaries; 5 percent brittleness in krotovinas. 50 percent of krotovinas are fresh, pink (7.5YR 7/3) and grayish brown (10YR 5/2) layered cups; 50 percent of krotovinas are old, gray (10YR 6/1), pink (7.5YR 7/3), and grayish brown (10YR 5/2); very strongly acid; diffuse wavy boundary.

Btg/Eg1—41 to 51 inches; light gray (10YR 7/2) and 10 percent pink (7.5YR 7/3) (Eg), very fine sandy loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm, hard, nonsticky, nonplastic; few very fine roots; common fine and medium pores; 10 percent by volume albic

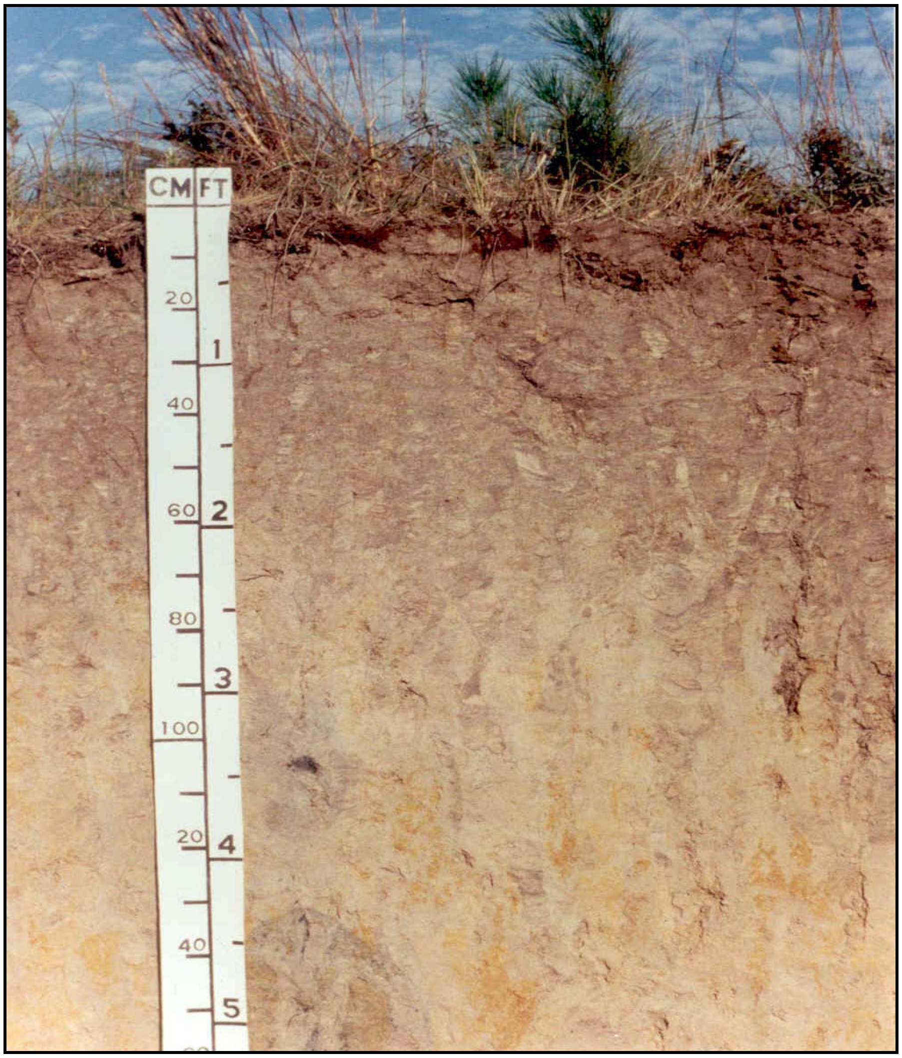

Figure 29.—Profile of Sorter very fine sandy loam in an area of Sorter-Dallardsville complex, 0 to 1 percent.

tongues; 70 percent by volume krotovinas; 20 percent medium and coarse prominent brownish yellow (10YR 6/8) masses of oxidized iron on faces of peds with diffuse boundaries; 7 percent fine and medium prominent yellowish red (5YR 5/8) masses of oxidized iron on faces of peds with clear boundaries; 10 percent brittleness in krotovinas. 40 percent krotovinas are fresh and 30 of krotovinas are old; very strongly acid; diffuse wavy boundary.

Btg/Eg2—51 to 78 inches; light gray (10YR 7/2) and 20 percent pink (7.5YR 7/3), (Eg) very fine sandy loam; moderate medium and coarse prismatic structure parting to moderate coarse subangular blocky; firm, hard, nonsticky, nonplastic; few very fine roots; common fine and medium pores; 20 percent by volume albic tongues; 45 percent by volume krotovinas; 20 percent medium and coarse prominent brownish yellow (10YR 6/8) masses of oxidized iron throughout with diffuse boundaries; 5 percent fine prominent yellowish red (5YR 5/8) masses of oxidized iron lining pores with sharp boundaries; 2 percent fine and medium prominent reddish yellow (7.5YR 7/6) masses of oxidized iron on faces of peds with clear boundaries; 2 percent fine prominent

light gray (10YR 7/1) iron depletions lining pores with sharp boundaries; 20 percent brittleness in krotovinas. 35 percent krotovinas are fresh and 10 percent are old; very strongly acid; diffuse wavy boundary.

Eg/Btgx—78 to 80 inches; 80 percent pinkish gray (7.5YR 7/2) and 20 percent pink (7.5YR 7/2), very fine sandy loam; weak coarse prismatic structure parting to weak coarse subangular blocky structure; very firm, very hard, nonsticky, nonplastic; few very fine roots; common fine and medium pores; 60 percent by volume albic tongues; 35 percent by volume krotovinas; 15 percent fine prominent brownish yellow (10YR 6/8) masses of oxidized iron on vertical faces of peds with clear boundaries; 60 percent brittleness in B horizon. 25 percent krotovinas are fresh and 10 percent are old; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. The weighted average clay content in the particle-size control section ranges from 4 to 12 percent. CEC to clay ratio ranges from 0.65 to 1.0 throughout. Exchangeable sodium percentage ranges from 7 to 15 in the particle-size control section and 1 to 15 throughout.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Texture is very fine sandy loam or silt loam. Crayfish krotovinas range from 40 to 60 percent. Redoximorphic features in shades of brown or yellow range from few to common. Reaction is extremely acid or very strongly acid.

The Bg horizon have hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Texture is very fine sandy loam, silt loam, or loam. Crayfish krotovinas range from 50 to 80 percent. Redoximorphic features in shades of red, brown, or yellow range from common to many. Reaction is extremely acid or very strongly acid.

The Btg part of the Btg/Eg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. The Eg part has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 1 to 3. Texture is very fine sandy loam, fine sandy loam, silt loam, or loam. Crayfish krotovinas range from 30 to 60 percent. Redoximorphic features in shades of red, brown, yellow, gray, green, or blue range from none to many. Reaction ranges from very strongly acid to slightly acid.

The Eg part of the Eg/Btg horizon has hue of 10YR or 2.5Y, value of 6 to 7, and chroma of 1 or 2. The Btg horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2. Texture is fine sandy loam, very fine sandy loam, or silt loam. Crayfish krotovinas range from 0 to 10 percent. Redoximorphic features in shades of red, brown, yellow, gray, green, or blue range from none to common. Reaction is slightly acid or neutral.

The Btgx part of the Eg/Btgx horizon has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 1 or 2. The Eg part has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 1 to 3. Texture is fine sandy loam, very fine sandy loam, silt loam, or loam. Brittleness of peds ranges from 25 to 75 percent. Crayfish krotovinas range from 30 to 60 percent. Redoximorphic features in shades of red, brown, yellow, gray, green, or blue range from none to many. Reaction ranges from very strongly acid to slightly acid.

Spurger Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: River valley on coastal plain
Landform: Riser on terrace
Parent material: Loamy alluvium of late Pleistocene age
Geology: Lissie Formation
Drainage class: Moderately well drained

Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Very high
Slope: 0 to 1 percent

Associated Soils

- Belrose soils are loamy throughout and are on similar positions.
- Caneyhead soils fine-silty and are in depressions.
- Kenefick soils loamy throughout and are on similar positions.
- Votaw soils sandy throughout on similar positions.

Taxonomic Classification

Fine, smectitic, thermic Albaquultic Hapludalfs

Typical Pedon

Spurger very fine sandy loam in an area of Spurger-Caneyhead complex, 0 to 1 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1013 in Spurger; 4.1 miles east on Farm Road 1013 to Forest Lake Road, 1.4 miles south on Forest Lake Road, and 50 feet east of road in pine plantation. Magnolia Springs, Texas USGS Quadrangle; Latitude—30 degrees, 39 minutes, 28.70 seconds N., and Longitude—94 degrees, 5 minutes, 57.80 seconds W.

A—0 to 4 inches; brown (10YR 4/3), very fine sandy loam; moderate medium granular structure; firm, hard, slightly sticky, slightly plastic; many fine to coarse roots; common medium interstitial and tubular pores; extremely acid; clear smooth boundary.

E—4 to 8 inches; pale brown (10YR 6/3), loam; 10 percent fine and medium distinct brownish yellow (10YR 6/8) and 5 percent fine distinct light brownish gray (10YR 6/2) and 5 percent coarse distinct brown (10YR 4/3) mottles; moderate medium subangular blocky structure; firm, hard, slightly sticky, slightly plastic; many fine to coarse roots; common fine interstitial and tubular pores; extremely acid; clear smooth boundary.

Bt1—8 to 23 inches; red (2.5YR 4/6), clay; 5 percent fine prominent pale brown (10YR 6/3) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; common fine and medium roots; common very fine tubular pores; 2 percent distinct red (10R 4/6) clay films on faces of peds; extremely acid; gradual smooth boundary.

Bt2—23 to 44 inches; red (2.5YR 4/6), clay; 20 percent medium and coarse prominent light brownish gray (10YR 6/2) and 10 percent fine and medium prominent brownish yellow (10YR 6/6) mottles; moderate medium prismatic structure parting to moderate fine and medium angular blocky; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common very fine tubular pores; 1 percent pressure faces and 2 percent distinct red (10R 4/6) clay films on faces of peds; extremely acid; gradual smooth boundary.

Bt3—44 to 52 inches; red (2.5YR 4/8), silty clay; 25 percent medium and coarse prominent light brownish gray (10YR 6/2) and 5 percent fine prominent brownish yellow (10YR 6/6) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common very fine tubular pores; 1 percent pressure faces and 3 percent distinct red (2.5YR 4/6) clay films on faces of peds; extremely acid; gradual wavy boundary.

Btg—52 to 58 inches; light brownish gray (10YR 6/2), silty clay; 40 percent medium and coarse prominent red (2.5YR 5/8) and 5 percent fine prominent yellowish red (5YR 5/6) mottles; moderate medium prismatic structure; extremely firm, extremely hard, very sticky, very plastic; common very fine and fine roots; common very fine tubular pores; 2 percent faint light brownish gray (10YR 6/2) clay films on faces of peds; extremely acid; gradual smooth boundary.

BC—58 to 80 inches; 70 percent yellowish brown (10YR 5/8) and 30 percent light brownish gray (10YR 6/2), fine sandy loam; 5 percent fine prominent yellowish red (5YR 5/8) mottles; weak medium prismatic structure; firm, hard, nonsticky, nonplastic; common very fine roots; common fine tubular pores; extremely acid.

Range in Characteristics

Solum thickness ranges from 40 to 70 inches. Base saturation ranges from 35 to 60 percent at 50 inches below the top of the argillic horizon. The soil has an udic soil moisture regime. The soil moisture control section is 4 to 12 inches. Mean annual soil temperature is 67 to 70 degrees F. Depth to argillic horizon is 6 to 17 inches. The particle-size control section has a clay content of 40 to 55 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is very fine sandy loam. Redoximorphic features in shades of gray range from common to many. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4. Texture is very fine sandy loam or loam. Redoximorphic features in shades of brown and gray range from common to many in the matrix. Reaction is very strongly acid to slightly acid.

The upper Bt horizon has hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 4 to 8. Texture is clay loam or clay. Redoximorphic features in shades of red, brown, yellow, or gray range from few to many. Reaction ranges from very strongly acid to moderately acid.

The lower Bt horizon has hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 2 or 3. Texture is loam, sandy clay loam, or clay loam. Redoximorphic features in shades of red, brown, yellow, or gray range from few to many. Albic material range from 0 to 5 percent. Reaction ranges from very strongly acid to moderately acid.

The BC horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 2 to 8. Texture is loam, sandy clay loam, or clay loam. Redoximorphic features in shades of red, brown, yellow, or gray range from few to many in matrix. Albic material ranges from 0 to 5 percent. Reaction ranges from very strongly acid to slightly acid.

The C horizon, where present, has hue of 5YR to 10YR, value of 5 to 7, and chroma of 2 to 8. Texture is sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam with thin strata of loam, sandy clay loam, or clay loam, in some pedons. Redoximorphic features in shades of red, brown, yellow, or gray are few. Reaction ranges from very strongly acid to slightly acid.

Stringtown Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberland
Landscape: Coastal plain
Landform: Hill slope
Parent material: Weakly consolidated loamy sediments of late Tertiary or early Pleistocene age
Geology: Willis Formation
Drainage class: Well drained

Permeability class: Slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 5 to 15 percent

Associated Soils

- Bonwier soils are moderately deep and have clayey subsoils.
- Doucette soils have a sandy epipedon more than 20 inches thick.
- Hillister soils have a sandy epipedon more than 20 inches thick.
- Pinetucky soils are on slopes less than 5 percent.
- Shankler soils have a sandy epipedon more than 40 inches thick.

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Stringtown fine sandy loam in an area of Stringtown-Bonwier complex, 5 to 15 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 10.85 miles west on U.S. Highway 190, 2.7 miles south on woods road, and 50 feet west in woods. Jacks Creek North, Texas USGS Quadrangle; Latitude—30 degrees, 43 minutes, 14.60 seconds N., and Longitude—94 degrees, 32 minutes, 12.30 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3), fine sandy loam; weak medium subangular blocky structure; friable, slightly hard; very strongly acid; clear wavy boundary.

Bt1—10 to 16 inches; brownish yellow (10YR 6/6), sandy clay loam; moderate medium subangular blocky structure; firm, hard; very strongly acid; gradual wavy boundary.

Bt2—16 to 24 inches; strong brown (7.5YR 5/6), sandy clay loam; moderate medium subangular blocky structure; firm, hard; 4 percent discontinuous distinct skeletons; very strongly acid; gradual wavy boundary.

Bt3—24 to 43 inches; strong brown (7.5YR 5/8), sandy clay loam; 5 percent medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm, hard; very strongly acid; gradual wavy boundary.

Bt4—43 to 52 inches; strong brown (7.5YR 5/8), sandy clay loam; 5 percent medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm, hard; 2 percent discontinuous distinct skeletons; very strongly acid; gradual wavy boundary.

BC—52 to 58 inches; strong brown (7.5YR 5/8), loam; 10 percent medium distinct yellowish red (5YR 5/8) and 5 percent medium distinct yellow (10YR 7/8) mottles; moderate medium subangular blocky structure; firm, slightly hard; 33 percent discontinuous distinct skeletons; very strongly acid; gradual wavy boundary.

Cd—58 to 80 inches; yellowish red (5YR 5/8), noncemented loam; 10 percent medium distinct red (2.5YR 4/8) and 10 percent medium prominent yellow (10YR 7/8) mottles; weak medium subangular blocky structure; friable, slightly hard; 4 percent discontinuous prominent skeletons; very strongly acid.

Range in Characteristics

Solum thickness ranges from 40 to 60 inches. Ironstone pebbles and angular fragments make up 1 to 15 percent by volume of the A and E horizons. A few ironstone cobbles up to 6 inches across occur in some pedons. Plinthite makes up 1

to 4 percent by volume of the lower Bt horizons. Base saturation ranges from 25 to 35 percent.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. Texture is fine sandy loam. Reaction ranges from very strongly acid to slightly acid.

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. Texture is loamy fine sand or fine sandy loam. Reaction ranges from very strongly acid to slightly acid.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. Redoximorphic features in shades of red, brown, and yellow, and lithochromic mottles in shades of gray are in the Bt1 and Bt2 horizon. Gray lithochromic mottles are because of weathered shale fragments. Texture is sandy clay loam or clay loam with clay content of the upper 20 inches of the Bt horizon ranging from 18 to 35 percent. The Bt horizon generally contains 1 to 15 percent by volume of pebbles and flattened fragments of ironstone. Reaction is very strongly acid to moderately acid.

The BC horizon is variegated in shades of red, yellow, and gray. Texture is sandy clay loam or clay loam. It commonly contains fragments of shale and sandstone. Reaction ranges from extremely acid to strongly acid.

The Cd horizon is noncemented loam with strata of soft shale and sandstone in colors of red, brown, and gray The strata of sandstone can be cut with a spade. Reaction ranges from extremely acid to strongly acid.

Turkey Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: River valley on coastal plain
Landform: Ridge on terrace
Parent material: Sandy alluvium of late Pleistocene age
Geology: Deweyville Formation
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 1 to 3 percent

Associated Soils

- Belrose soils are loamy throughout.
- McNeely soils are excessively drained.
- Votaw soils are moderately well drained.

Taxonomic Classification

Thermic, coated Typic Quartzipsamments

Typical Pedon

Turkey sand in an area of Turkey sand, 1 to 3 percent slopes; located in Hardin County, Texas, from the intersection of Texas Highway 327 and Farm Road 92 in Silsbee, 2.3 miles west on Texas Highway 327 to intersection with county road, 1.0 mile north on county road to the intersection with county road, 1.3 miles west on county road, 0.6 mile south and east, and 300 feet south in woodland. Silsbee, Texas USGS Quadrangle; Latitude: 30 degrees, 21 minutes, 46.00 seconds N., and Longitude: 94 degrees, 13 minutes, 54.00 seconds W.

A—0 to 5 inches; very dark grayish brown (10YR 3/2), sand; weak fine subangular blocky structure; very friable, loose; many very fine and fine roots,

common medium roots, and common coarse roots; common fine and medium interstitial pores; very strongly acid; clear smooth boundary.

Bw1—5 to 10 inches; brown (7.5YR 4/4), sand; weak fine subangular blocky structure; very friable, loose; many very fine and fine roots throughout and common medium and coarse roots throughout; common fine and medium tubular pores; few old root channels filled with very dark grayish brown (10YR 3/2) sand; very strongly acid; gradual smooth boundary.

Bw2—10 to 20 inches; yellowish red (5YR 4/6), sand; weak coarse prismatic structure parting to weak fine and medium subangular blocky; very friable, loose; many fine roots throughout and common medium and coarse roots throughout; common medium tubular pores; 1 percent pinkish gray (7.5YR 7/2) and 5 percent brown (7.5YR 5/4) iron stains; 5 percent fine prominent brown (7.5YR 5/4) manganese coatings in matrix with sharp boundaries; few fine pinkish gray (7.5YR 7/2) albic materials along root channels and on surfaces of prisms; very strongly acid; gradual smooth boundary.

Bw3—20 to 33 inches; yellowish red (5YR 5/6), sand; weak coarse prismatic structure parting to weak fine and medium subangular blocky; very friable, loose; common fine and medium roots throughout; common medium tubular pores; 1 percent pinkish gray (7.5YR 7/2) and 3 percent brown (7.5YR 5/4) iron stains; 5 percent fine prominent brown (7.5YR 5/4) manganese coatings in matrix with sharp boundaries; few fine pinkish gray (7.5YR 7/2) albic materials along root channels and on surfaces of prisms; very strongly acid; gradual smooth boundary.

Bw4—33 to 52 inches; yellowish red (5YR 5/6), sand; weak coarse prismatic structure parting to weak fine and medium subangular blocky; very friable, loose; common fine roots; common fine tubular pores; 1 percent pinkish gray (7.5YR 7/2) and 15 percent pink (7.5YR 7/4) iron stains; 1 percent fine and medium prominent brown (7.5YR 4/4) manganese coatings in matrix with sharp boundaries; few fine pinkish gray (7.5YR 7/2) albic materials along root channels and on surfaces of prisms; very strongly acid; diffuse irregular boundary.

Bw5—52 to 80 inches; strong brown (7.5YR 5/8), sand; weak coarse prismatic structure parting to weak fine and medium subangular blocky; very friable, loose; common medium tubular pores; 2 percent pink (7.5YR 7/4) iron stains and 2 percent pinkish white (7.5YR 8/2); 1 percent fine prominent pink (7.5YR 7/4) manganese coatings in matrix with sharp boundaries; few fine pinkish gray (7.5YR 7/2) albic materials along root channels and on surfaces of prisms; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content in the particle-size control section ranges from 5 to 7 percent and sand content ranges from 80 to 90 percent. The texture is sand or loamy sand. Reaction ranges from extremely acid to strongly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Pedons with color value of 3 and chroma of 2 or 3 are less than 10 inches thick. Texture is sand. Reaction is very strongly acid.

The Bw horizon has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. Texture is sand or loamy sand. Redoximorphic features in shades of brown or yellow range from few to common. Albic material in shades of gray or white range from few to common and is along root channels and prism faces. Reaction is very strongly acid or strongly acid.

Tyden Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: River valley on coastal plain
Landform: Swale on terrace
Parent material: Loamy alluvium of late Pleistocene age
Geology: Deweyville Formation
Drainage class: Very poorly drained
Slowest permeability: Slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Babco soils are on mounds.
- Belrose soils are moderately well drained.
- Votaw soils are sandy throughout.

Taxonomic Classification

Coarse-loamy, siliceous, active, thermic Umbric Paleaquults

Typical Pedon

Tyden silt loam (fig. 30) in an area of Tyden-Babco complex, 0 to 1 percent slopes; located in Hardin County, Texas, from the intersection of U.S. Highway 69 and Farm Road 326 in Kountze, 7.8 miles north on U.S. Highway 69 to the intersection with Farm Road 420, 3.8 miles east on Farm Road 420 to the intersection with county road, 1.3 miles on county road to the intersection with forest road, 0.6 mile north and east on forest road and pipeline, and 150 feet north on pipeline. Kountze North, Texas USGS Quadrangle; Latitude—30 degrees, 28 minutes, 45.50 seconds N., and Longitude—94 degrees, 18 minutes, 48.00 seconds W.

A1—0 to 6 inches; black (10YR 2/1), silt loam; weak fine platy structure; many very fine to coarse roots throughout; common fine and medium interstitial pores; 25 percent organic material consisting of partially decomposed forest litter on surface; extremely acid; clear smooth boundary.

A2—6 to 13 inches; very dark gray (10YR 3/1), very fine sandy loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; friable, nonsticky, nonplastic; common fine to coarse roots throughout; common fine and medium interstitial and tubular pores; 7 to 8 percent organic matter; extremely acid; clear smooth boundary.

A/Eg—13 to 19 inches; 80 percent dark gray (10YR 4/1) interior and 20 percent light brownish gray (10YR 6/2) interior, very fine sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable, nonsticky, nonplastic; common fine roots throughout; many fine and medium interstitial and tubular pores; 5 percent by volume albic tongues; 1 percent by volume krotovinas; few crayfish krotovinas filled with very dark gray (10YR 3/1) very fine sandy loam; the Eg portion of this horizon consists of albic material on surfaces of prisms; extremely acid; clear wavy boundary.

Eg/Btg1—19 to 28 inches; 30 percent dark grayish brown (10YR 4/2) interior and grayish brown (10YR 5/2) exterior, fine sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; common fine roots

Figure 30.—Profile of Tyden silt loam in an area of Tyden-Babco complex, 0 to 1 percent slopes.

between peds; common fine to coarse vesicular and tubular pores; 2 percent fine and medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron lining pores with clear boundaries; few crayfish krotovinas filled with dark gray (10YR 4/1) very fine sandy loam; 5 percent brittle material that is 2 to 5 inches wide; extremely acid; gradual wavy boundary.

Eg/Btg2—28 to 41 inches; 40 percent grayish brown (10YR 5/2) interior and light brownish gray (10YR 6/2) exterior, fine sandy loam; weak coarse prismatic structure parting to moderate medium angular blocky; common fine roots between peds; common fine to coarse vesicular and tubular pores; 6 percent fine and medium distinct yellowish brown (10YR 5/6) and 3 percent fine prominent strong brown (7.5YR 5/8) masses of oxidized iron in matrix with diffuse boundaries; few crayfish krotovinas filled with dark gray (10YR4/1) very fine sandy loam; 15 percent brittle material that is 2 to 5 inches wide; extremely acid; gradual irregular boundary.

Btg/Eg1—41 to 58 inches; 45 percent light brownish gray (10YR 6/2) and grayish brown (10YR 5/2), fine sandy loam; moderate coarse prismatic structure parting to weak coarse subangular blocky; common very fine roots between peds; many fine to coarse vesicular and tubular pores; 2 percent faint grayish brown (10YR 5/2) clay films on faces of peds; 2 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in matrix with diffuse boundaries; 2 percent fine distinct threadlike barite crystals; few crayfish krotovinas filled with dark gray (10YR 4/1) very fine sandy loam; the Eg portion of the horizon consists of albic material 1/2-inch to 3 inches wide on surfaces of prisms and is a clay depletion because of aquic conditions; 55 percent brittle material that is 2 to 10 inches wide; extremely acid; gradual irregular boundary.

Btg/Eg2—58 to 73 inches; 30 percent pinkish gray (7.5YR 7/2) and light brownish gray (10YR 6/2), fine sandy loam; moderate coarse prismatic structure parting to weak coarse subangular blocky; common fine roots between peds; many fine to coarse vesicular and tubular pores; 2 percent faint light brownish gray (10YR 6/2) clay films on faces of peds; 2 percent fine and medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in matrix with diffuse boundaries; 2 percent fine distinct threadlike barite crystals; the Eg portion of the horizon consists of albic material 1/2-inch to 3 inches wide on surfaces of prisms and is a clay depletion because of aquic conditions; 20 percent brittle material that is 2 to 8 inches wide; extremely acid; gradual irregular boundary.

Btg/Eg3—73 to 80 inches; 25 percent pinkish gray (7.5YR 7/2) and light brownish gray (10YR 6/2), loam; moderate medium prismatic structure parting to weak coarse subangular blocky; common very fine roots between peds; many fine and medium vesicular and tubular pores; 2 percent faint grayish brown (10YR 5/2) clay films on faces of peds; 8 percent fine and medium distinct yellowish brown (10YR 5/6), 8 percent fine and medium prominent yellowish red (5YR 5/8) and 2 percent fine and medium prominent strong brown (7.5YR 5/6) masses of oxidized iron in matrix with clear boundaries; the Eg portion of the horizon consists of albic material 1/4-inch to 2 inches wide on surfaces of prisms and is a clay depletion because of aquic conditions; 20 percent brittle material that is 2 to 8 inches wide; very strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content of the particle-size control section is 3 to 12 percent. Base saturation is 10 to 25 percent at 180 centimeters. Reaction is extremely acid or very strongly acid throughout.

The upper part of the A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. Texture is silt loam.

The lower part of the A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. Texture is fine sandy loam, very fine sandy loam, or silt loam.

The A part of the A/Eg horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The Eg part has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Texture is fine sandy loam, very fine sandy loam, or silt loam. The E makes up 20 to 40 percent of the horizon.

The Eg part of the Eg/Btg horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. The Btg part has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. Texture is fine sandy loam, very fine sandy loam, or silt loam. The E part is in the form of albic material on surfaces of prisms. The Btg makes up 20 to 40 percent of the horizon. Redoximorphic concentrations in shades of yellow or brown range from few to common. Brittle material ranges from 5 to 25 percent. Some pedons have up to 2 percent siliceous pebbles.

The Btg part of the upper Btg/Eg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. The Eg part has hue of 7.5YR to 2.5Y, value of 7 or 8, and chroma of 1 or 2. The Eg part makes up 20 to 40 percent and is in the form of albic materials. Texture is fine sandy loam, loam, or silt loam. Redoximorphic features in shades of red, brown, or yellow are common and mostly occur in the Btg part. Brittle material ranges from 15 to 60. Some pedons have up to 2 percent siliceous pebbles.

The Btg part of the lower Btg/Eg horizon has hue of 10YR to 5Y, value of 6 or 7, and chroma of 1 or 2. The Eg part has hue of 10YR or 2.5Y, value of 7 or 8, and chroma of 1 or 2. The E makes up 20 to 40 percent and is in the form of albic materials. Texture is fine sandy loam, loam, or sandy clay loam. Redoximorphic features in shades of red, brown, or yellow are common and mostly occur in the Btg. Brittle material ranges from 15 to 40 percent. Some pedons have up to 2 percent siliceous pebbles.

Urland Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Interfluve
Parent material: Stratified sandstone and clayey coastal plain sediments
Geology: Willis Formation
Drainage class: Well drained
Slowest permeability: Moderately slow
Soil depth class: Moderately deep to bedrock (paralithic) layer
Shrink-swell potential: Moderate
Slope: 1 to 5 percent

Associated Soils

- Bonwier soils have sola 20 to 40 inches thick.
- Doucette and Boykin soils have thick sandy epipedons.
- Newco soils are moderately well drained.
- Shankler soils have sandy epipedons more than 40 inches thick.

Taxonomic Classification

Fine, mixed, active, thermic Typic Hapludults

Typical Pedon

Urland fine sandy loam in an area of Urland fine sandy loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 2.9 miles west on U.S. Highway 190, 0.9 mile south and southwest on County Road 1100, 2.3 miles south on International Paper Seed Orchard Road, and 60 feet east in woods. Hillister, Texas USGS Quadrangle; Latitude—30 degrees, 43 minutes, 31.80 seconds N., and Longitude—94 degrees, 27 minutes, 59.10 seconds W.

A—0 to 5 inches; brown (10YR 4/3), fine sandy loam; weak fine subangular blocky structure; very friable, loose, nonsticky, nonplastic; moderately acid; clear smooth boundary.

E—5 to 8 inches; brown (10YR 5/3), fine sandy loam; weak fine subangular blocky structure; very friable, loose, nonsticky, nonplastic; strongly acid; clear wavy boundary.

Bt1—8 to 13 inches; yellowish red (5YR 5/8), sandy clay loam; 5 percent medium distinct reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky

structure; friable, hard, moderately sticky, moderately plastic; strongly acid; gradual wavy boundary.

Bt2—13 to 22 inches; red (10R 4/8), clay; moderate medium subangular blocky structure; firm, very hard, very sticky, very plastic; very strongly acid; gradual wavy boundary.

Bt3—22 to 29 inches; red (10R 4/6), clay; 5 percent medium distinct reddish yellow (7.5YR 6/8) and 1 percent fine distinct pinkish gray (5YR 6/2) mottles; moderate medium subangular blocky structure; firm, very hard, very sticky, very plastic; very strongly acid; clear wavy boundary.

BC—29 to 49 inches; 35 percent reddish yellow (7.5YR 6/8) and 35 percent pinkish gray (7.5YR 7/2) and 30 percent red (10R 4/6), clay loam; moderate medium subangular blocky structure; firm, very hard, slightly sticky, moderately plastic; very strongly acid; clear wavy boundary.

Cd—49 to 65 inches; 40 percent reddish yellow (7.5YR 6/8), 30 percent pinkish gray (7.5YR 7/2), and 30 percent red (10R 5/6), moderately cemented sandy clay loam; friable, hard, slightly sticky, slightly plastic; very strongly acid.

Range in Characteristics

Solum thickness ranges from 40 to 60 inches. Base saturation ranges from 15 to 35 percent at 50 inches below the top of the argillic horizon.

The A horizon has a hue of 10YR, value of 3 to 5, and chroma of 2 to 4. Texture is fine sandy loam or gravelly fine sandy loam. Ironstone pebbles and fragments range from 0 to 25 percent by volume. Reaction ranges from strongly acid to slightly acid.

The E horizon has a hue of 10YR, value of 4 to 6, and chroma of 2 to 4. Texture is fine sandy loam or gravelly fine sandy loam. Ironstone pebbles and fragments range from 0 to 25 percent by volume. Reaction ranges from strongly acid to slightly acid.

The upper Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. Iron accumulations range from none to common in shades of red and brown. Texture is clay loam, sandy clay, or clay with a clay content of 35 to 55 percent. This horizon contains from 0 to about 10 percent by volume of ironstone pebbles. Reaction is very strongly acid or strongly acid.

The lower Bt horizon has hue of 10R to 7.5YR, value of 4 or 5, and chroma of 4 to 8. Iron accumulations in shades of red, brown, yellow, and iron depletions in shades of gray range from common to many. Texture is sandy clay loam, clay loam, or clay. Reaction is very strongly acid or strongly acid.

The BC or CB horizon has hue of 10R to 7.5YR, value of 4 or 7, and chroma of 2 to 8. Iron accumulations in shades of red, brown, yellow, and iron depletions in shades of gray range from common to many. Texture is sandy loam, sandy clay loam, or clay loam. Reaction is very strongly acid or strongly acid.

The Cd horizon, where present, has colors of red, pink, yellow, brown, gray, or white, and is stratified or interbedded with soft sandstone and clayey to loamy soil materials. It is noncemented in some pedons, but can be cut with a spade. Reaction ranges from extremely acid to strongly acid.

Votaw Series

MLRA: 152B—Western Gulf Coast Flatwoods
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Terrace, third level
Parent material: Sandy alluvium of late Pleistocene age
Geology: Deweyville Formation

Drainage class: Moderately well drained
Slowest permeability: Moderately rapid
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Babco soils have a spodic horizon.
- Belrose soils are loamy throughout.
- Caneyhead soils are loamy throughout and are in depressions.
- Kenefick soils have red loamy subsoil.
- Tyden soils are loamy throughout and are in low flats.

Taxonomic Classification

Thermic, coated Oxyaquic Quartzipsamments

Typical Pedon

Votaw fine sand in an area of Votaw fine sand, 0 to 1 percent slopes; located in Hardin County, Texas, from the intersection of Farm Road 92 and Farm Road 1122 in Silsbee, 1.8 miles north on Farm Road 2937 to intersection with county road, 2.1 miles east on county road to forest road, 0.6 mile north on forest road, 0.2 mile west and 0.5 mile south, and 100 feet west in forest. Deserter Baygall, Texas USGS Quadrangle; Latitude—30 degrees, 24 minutes, 59.00 seconds N., and Longitude—94 degrees, 8 minutes, 37.00 seconds W.

A—0 to 4 inches; 70 percent dark grayish brown (10YR 4/2) and 30 percent light gray (10YR 7/2), fine sand; single grain; loose, soft; many fine and medium roots; many very fine to medium interstitial and tubular pores; 1 percent distinct yellowish brown (10YR 5/4) organic stains; very strongly acid; abrupt smooth boundary.

Bw1—4 to 9 inches; yellowish brown (10YR 5/6) and 25 percent yellowish brown (10YR 5/4), fine sand; weak coarse prismatic structure; loose, soft; many fine to coarse roots; common medium interstitial and tubular pores; 5 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; 25 percent root channels filled with grayish brown (10YR 5/2), light gray (10YR 7/2), light brownish gray (10YR 6/2), and dark grayish brown (10YR 4/2) loamy sand; strongly acid; clear smooth boundary.

Bw2—9 to 15 inches; 50 percent yellowish brown (10YR 5/4) and 45 percent yellowish brown (10YR 5/6), fine sand; weak coarse prismatic structure; loose, soft; many fine and medium roots and common coarse roots; common medium tubular pores; 5 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; 25 percent root channels filled with grayish brown (10YR 5/2), light gray (10YR 7/2), light brownish gray (10YR 6/2), and dark grayish brown (10YR 4/2) loamy sand; 2 percent fine distinct light gray (10YR 7/2) masses of clean sand grains along pores; strongly acid; clear wavy boundary.

Bw3—15 to 25 inches; yellowish brown (10YR 5/4) and 40 percent yellowish brown (10YR 5/6), fine sand; weak coarse prismatic structure; loose, soft; many fine and medium roots and common coarse roots; common medium tubular pores; 2 percent faint light gray (10YR 7/2) sand coats on vertical faces of peds; 3 percent fine and medium prominent strong brown (7.5YR 5/6) and 5 percent fine and medium distinct brown (7.5YR 5/4) masses of oxidized iron on faces of peds with clear boundaries; 5 percent root channels filled with

light brownish gray (10YR 6/2) and light gray (10YR 7/2) loamy sand; moderately acid; clear wavy boundary.

Bw4—25 to 29 inches; yellowish brown (10YR 5/4) and 35 percent yellowish brown (10YR 5/6), fine sand; weak coarse prismatic structure; loose, soft; common fine to coarse roots; common medium tubular pores; 10 percent fine and medium prominent brown (7.5YR 4/4) and 3 percent fine and medium distinct brown (7.5YR 5/4) masses of oxidized iron on faces of peds with clear boundaries; 1 percent fine and medium prominent black (N 2/) iron-manganese masses; moderately acid; clear broken boundary.

Bw/Eg1—29 to 47 inches; brownish yellow (10YR 6/6) and 35 percent light gray (2.5Y 7/2), fine sand; weak coarse prismatic structure; loose, soft; common fine to coarse roots; common fine and medium tubular pores; 15 percent fine and medium distinct strong brown (7.5YR 5/6) and 1 percent fine prominent yellowish red (5YR 5/6) masses of oxidized iron on faces of peds with clear boundaries; the Eg portion of this horizon consists of albic material 1/2-inch to 3 inches wide on vertical surfaces of peds; moderately acid; gradual wavy boundary.

Bw/Eg2—47 to 63 inches; very pale brown (10YR 7/4) and 25 percent light gray (10YR 7/2), fine sand; weak coarse prismatic structure; loose, soft; common fine and medium roots; common fine tubular pores; 1 percent faint strong brown (7.5YR 5/6) clay bridges between sand grains and 1 percent faint very pale brown (10YR 8/3) clay bridges between sand grains; 25 percent coarse prominent reddish yellow (7.5YR 6/8) and 10 percent fine and medium prominent yellowish red (5YR 5/8) masses of oxidized iron throughout with clear boundaries; 10 percent medium and coarse distinct brownish yellow (10YR 6/8) masses of oxidized iron throughout with diffuse boundaries; the Eg portion of this horizon consists of albic material 1 to 3 inches wide on vertical surfaces of peds; strongly acid; gradual wavy boundary.

Bg—63 to 80 inches; light gray (2.5Y 7/2), fine sand; massive; loose, soft; common fine and medium roots; common fine tubular pores; 35 percent fine and medium prominent yellow (10YR 7/6) masses of oxidized iron throughout with diffuse boundaries; 10 percent fine and medium prominent masses of oxidized iron throughout with diffuse boundaries; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Weighted average clay content in the particle-size control section range from 1 to 8 percent. Weighted average silt plus clay content in the particle-size control section range from 5 to 10 percent. Reaction ranges from very strongly acid to moderately acid throughout.

The A horizon has hue of 10YR, value of 4 to 7, and chroma of 2 to 4. Texture is fine sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 4 to 6. Texture is fine sand or loamy fine sand. Redoximorphic features in shades of brown and yellow range from few to many. Masses of iron-manganese range from 0 to 5 percent. Iron depletions in the form of clean sand grains range from few to common in shades of gray or white.

The Bw part of the Bw/Eg horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 4 to 6. Texture is fine sand or loamy fine sand. Redoximorphic features in shades of red, brown, and yellow range from few to many. Iron-manganese masses range from 0 to 5 percent. The Eg part has hue of 10YR, value of 6 to 8, and chroma of 1 or 2. The Eg part ranges from 30 to 50 percent of the horizon.

The Bg has hue of 10YR or 2.5Y, value of 6 to 8, and chroma of 1 or 2. Texture is fine sand or loamy fine sand. Redoximorphic features in shades of brown or yellow range from few to many.

Waller Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: Flatwoods
Landscape: Flat coastal plain
Landform: Flats
Parent material: loamy sediments
Geology: Lissie Formation
Drainage class: Poorly drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Low
Slope: 0 to 1 percent

Associated Soils

- Jayhawker soils have a coarse-silty control section.
- Kirbyville and Kountze soils are moderately well drained.
- Nona soils are fine-silty and have diagnostic bioturbation.

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Typic Glossaqualfs

Typical Pedon

Waller silt loam (fig. 31) in an area of Waller-Dallardsville complex, 0 to 1 percent slopes; located from the intersection of Farm Road 92 and Farm Road 1943 in Fred, 2.2 miles south on Farm Road 92 to county road, 1.3 miles west on county road to forest road, 0.1 mile north and 0.6 mile northeast on forest road, and 100 feet west of road in forest. Fred, Texas USGS Quadrangle; Latitude—30 degrees, 32 minutes, 23.10 seconds N., and Longitude—94 degrees, 12 minutes, 2.00 seconds W.

A—0 to 4 inches; dark gray (10YR 4/1), silt loam; weak fine and medium granular structure; very friable, soft; many very fine and fine roots and common medium and coarse roots; common fine and medium interstitial and common coarse interstitial pores; 2 percent fine prominent yellowish brown (10YR 5/8) masses of oxidized iron lining pores with clear boundaries; 1 percent fine prominent black (N 2.5/) manganese masses on faces of peds with sharp boundaries; 18 percent of the horizon is crayfish krotovinas; krotovinas filled with gray (10YR 5/1) silt loam and very pale brown (10YR 7/3) very fine sand; very strongly acid; clear smooth boundary.

Eg1—4 to 9 inches; gray (10YR 5/1), silt loam; weak coarse prismatic structure parting to weak fine and medium subangular blocky; very friable, soft; common very fine and fine roots and common medium roots; common fine interstitial and common very fine interstitial pores; 12 percent fine prominent pink (7.5YR 7/3) masses of oxidized iron on faces of peds with clear boundaries; 4 percent fine prominent black (N 2.5/) manganese masses on faces of peds with sharp boundaries; 4 percent fine prominent yellowish brown (10YR 5/6) masses of oxidized iron lining pores with diffuse boundaries; 14 percent of the horizon is crayfish krotovinas; krotovinas filled with gray (10YR 5/1) silt loam and very pale brown (10YR 7/3) very fine sand; very strongly acid; clear smooth boundary.

Eg2—9 to 15 inches; grayish brown (10YR 5/2) and 25 percent light brownish gray (10YR 6/2), silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; very friable, soft; common very fine and fine roots and common medium roots; common fine interstitial and common very fine

Figure 31.—Profile of Waller silt loam in an area of Waller-Dallardsville complex, 0 to 1 percent slopes. Vertical streaks of albic material (E) comprise a large percentage of the subsoil.

interstitial pores; 14 percent fine prominent brownish yellow (10YR 6/6) masses of oxidized iron in matrix with diffuse boundaries; 6 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron lining pores with clear boundaries; 2 percent fine prominent black (N 2.5/) manganese masses on faces of peds with sharp boundaries; 8 percent of the horizon is crayfish krotovinas; krotovinas filled with gray (10YR 5/1) silt loam and light gray (10YR 7/2) very fine sand; very strongly acid; clear smooth boundary.

Eg/Btg—15 to 26 inches; light brownish gray (10YR 6/2) and 25 percent gray (10YR 6/1), silt loam; weak medium and coarse prismatic structure parting to weak fine and medium subangular blocky; friable, slightly hard; common very fine and fine roots; common very fine and fine interstitial pores; 3 percent faint gray (10YR 6/1) clay films on vertical faces of peds; 16 percent fine and medium prominent brownish yellow (10YR 6/6) masses of oxidized iron in matrix with diffuse boundaries; 4 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron lining pores with clear boundaries; 3 percent fine prominent black (N 2.5/) manganese masses on faces of peds with sharp boundaries; 11 percent of the horizon is crayfish krotovinas; krotovinas filled with gray (10YR 5/1) silt loam and light gray (10YR 7/2) very fine sand; very strongly acid; gradual smooth boundary.

Btg/Eg—26 to 37 inches; light brownish gray (10YR 6/2) and 20 percent gray (10YR 6/1), loam; weak medium and coarse prismatic structure parting to weak medium subangular blocky; firm, hard; common very fine and fine roots; common fine and medium tubular pores; 20 percent by volume albic tongues; 15 percent faint gray (10YR 6/1) clay films on faces of peds; 18 percent fine faint light yellowish brown (10YR 6/4) masses of oxidized iron in matrix with clear boundaries; 14 percent fine prominent brownish yellow (10YR 6/6) masses of oxidized iron in matrix with diffuse boundaries; 6 percent fine prominent strong brown (7.5YR 5/6) masses of oxidized iron lining pores with clear boundaries; 2 percent fine prominent black (N 2.5/) manganese masses on faces of peds with sharp boundaries; 5 percent of the horizon is crayfish krotovinas; krotovinas filled with gray (10YR 5/1) silt loam and pink (7.5YR 7/3) very fine sand; strongly acid; gradual wavy boundary.

Bt/Eg1—37 to 50 inches; yellowish brown (10YR 5/8) and 15 percent light brownish gray (2.5Y 6/2), clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, hard; common very fine and fine roots; common very fine and fine tubular pores; 15 percent by volume albic tongues; 20 percent faint yellowish brown (10YR 5/6) clay films on faces of peds; 17 percent fine and medium prominent red (2.5YR 5/6) masses of oxidized iron in matrix with sharp boundaries; 11 percent medium prominent red (2.5YR 4/6) masses of oxidized iron in matrix with clear boundaries; 10 percent medium and coarse prominent gray (2.5Y 6/1) iron depletions in matrix with clear boundaries; 3 percent medium spherical red (2.5YR 5/6) ironstone nodules; 2 percent medium spherical red (10R 5/6) plinthite nodules; red (2.5YR 4/6, 5/6) redox concentrations are brittle but plinthite; strongly acid; gradual wavy boundary.

Bt/Eg2—50 to 65 inches; yellowish brown (10YR 5/8) and 15 percent light brownish gray (2.5Y 6/2), clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm, hard; few very fine and fine roots; common very fine tubular pores; 15 percent by volume albic tongues; 10 percent faint strong brown (7.5YR 5/8) clay films on faces of peds; 14 percent fine and medium prominent red (2.5YR 5/6) masses of oxidized iron in matrix with sharp boundaries; 7 percent fine and medium prominent light gray (2.5Y 7/1) iron depletions in matrix with clear boundaries; 7 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in matrix with clear boundaries; 6 percent fine and medium prominent red (2.5YR 4/6) masses of oxidized iron in matrix with sharp boundaries; 2 percent medium red (10R 4/6) plinthite nodules; strong brown (7.5YR 5/8) redox concentrations are brittle but plinthite; strongly acid; gradual wavy boundary.

Bt/Eg3—65 to 80 inches; yellowish brown (10YR 5/8) and 15 percent light gray (2.5Y 7/2), sandy clay loam; weak medium and coarse prismatic structure parting to weak medium subangular blocky; firm, hard; few very fine and fine roots; common very fine tubular pores; 15 percent by volume albic tongues; 8 percent faint light gray (5Y 7/1) clay films on faces of peds; 23 percent fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in matrix with clear boundaries; 10 percent fine prominent red (2.5YR 5/6) masses of oxidized iron in matrix with sharp boundaries; 8 percent medium and coarse prominent light gray (5Y 7/1) iron depletions on faces of peds with diffuse boundaries; strongly acid.

Range in Characteristics

Solum thickness is more than 80 inches. Crayfish krotovinas range from 20 to 40 percent in the upper 100 centimeters. The particle-size control section contains 18 to 30 percent clay, 20 to 40 percent silt, and more than 15 percent sand coarser than

very fine sand. CEC to clay ratio ranges from 0.40 to 0.50. The combined thickness of the A and Eg horizons ranges from 20 to 40 inches.

The A horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. Texture is silt loam. Iron-manganese masses range from 0 to 4 percent. Reaction ranges from very strongly acid to moderately acid.

The Eg horizon has hue of 10YR or 2.5Y, value of 5 or 7, and chroma of 1 or 2. Texture is very fine sandy loam, loam, or silt loam. Redoximorphic features in shades of brown and yellow range from common to many. Reaction ranges from very strongly acid to moderately acid.

The Btg part of the Btg/E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. Texture is loam, sandy clay loam, or clay loam. The Eg part has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2 and consists of streaks, and pockets of very fine sandy loam, loam, or silt loam. The E part is 2 to 10 centimeters wide, are spaced about 15 to 20 centimeters apart, and taper to 1 to 5 centimeters wide in the lower part of the horizon. The E part makes up 15 to 35 percent of the horizon. Gypsum crystals range from none to common. The peds (Bt part) contain redoximorphic features in shades of brown and yellow, range from common to many, and are in the interior of peds. Reaction ranges from very strongly acid to moderately acid.

Wiergate Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Interfluve
Parent material: Weakly consolidated calcareous clays and marls
Geology: Fleming Formation
Drainage class: Moderately well drained
Slowest permeability: Very slow
Soil depth class: Very deep
Shrink-swell potential: Very high
Slope: 1 to 3 percent

Associated Soils

- Burkeville soils have less than 12 inches black surface.
- Redco soils have no carbonates in upper subsoil.
- Woodville soils have at least 5 inches of loamy surface.

Taxonomic Classification

Very-fine, smectitic, thermic Typic Hapluderts

Typical Pedon

Wiergate clay in an area of Wiergate clay, 1 to 3 percent slopes; located from the intersection of U.S. Highway 190 and U.S. Highway 69 in Woodville; 3.5 miles north on U.S. Highway 69, 5.3 miles east and north on Farm Road 1632, 0.5 mile northeast on Farm Road 256, 0.35 mile north and east on private lane, north through gate, 0.3 mile north on farm lane, and 400 feet east in pasture. Woodville, Texas USGS Quadrangle; Latitude—30 degrees, 52 minutes, 47.29 seconds N., and Longitude—94 degrees, 28 minutes, 50.06 seconds W.

Ap1—0 to 22 inches; very dark gray (10YR 3/1) exterior, clay; moderate medium subangular blocky structure; very firm, extremely hard, very sticky, very plastic; many fine roots throughout; 5 percent fine distinct irregular weakly

cemented carbonate concretions with clear boundaries between peds; slight effervescence; moderately alkaline; gradual wavy boundary.

Ap2—22 to 28 inches; dark gray (10YR 4/1) exterior, clay; weak medium subangular blocky structure; very firm, extremely hard, very sticky, very plastic; many fine roots throughout; 5 percent fine distinct irregular weakly cemented carbonate concretions with clear boundaries between peds; slight effervescence; moderately alkaline; clear wavy boundary.

Bkss1—28 to 37 inches; light brownish gray (2.5Y 6/2) exterior, clay; 5 percent fine faint dark gray (10YR 4/1) and 2 percent fine faint pale brown (10YR 6/3) mottles; moderate medium angular blocky structure; very firm, extremely hard, very sticky, very plastic; many fine roots in cracks; 15 percent continuous distinct slickensides (pedogenic) on vertical faces of peds; 15 percent medium distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix surrounding redox concentrations; strong effervescence; strongly alkaline; gradual wavy boundary.

Bkss2—37 to 48 inches; light yellowish brown (2.5Y 6/3) exterior, clay; 10 percent medium distinct brownish yellow (10YR 6/6) and 5 percent fine distinct (2.5YR 6/2) mottles; moderate medium angular blocky structure; very firm, extremely hard, very sticky, very plastic; many fine roots in cracks; 15 percent continuous distinct slickensides (pedogenic) on vertical faces of peds; 15 percent medium distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix surrounding redox concentrations; strong effervescence; strongly alkaline; gradual wavy boundary.

Bkss3—48 to 56 inches; light brownish gray (2.5Y 6/2) exterior, clay; 3 percent fine distinct brownish yellow (10YR 6/6) and 3 percent fine faint dark gray (10YR 4/1) mottles; massive; very firm, extremely hard, very sticky, very plastic; many fine roots in cracks; 15 percent continuous distinct slickensides (pedogenic) on vertical faces of peds; fine distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix surrounding redox concentrations; slight effervescence; strongly alkaline; gradual wavy boundary.

Bkss4—56 to 69 inches; light brownish gray (2.5Y 6/2) exterior, clay; 15 percent fine distinct yellowish brown (10YR 5/6) and 15 percent medium distinct yellowish brown (10YR 5/6) and 5 percent fine distinct brown (7.5YR 5/3) mottles; massive; very firm, extremely hard, very sticky, very plastic; many fine roots in cracks; 15 percent continuous distinct slickensides (pedogenic) on vertical faces of peds; 5 percent fine distinct irregular moderately cemented carbonate concretions with clear boundaries in matrix surrounding redox concentrations; slight effervescence; strongly alkaline; gradual wavy boundary.

Bkss5—69 to 80 inches; light gray (2.5Y 7/2) exterior, clay; 2 percent fine faint light yellowish brown (10YR 6/4) mottles; massive; very firm, extremely hard, very sticky, very plastic; many fine roots in cracks; 15 percent discontinuous distinct slickensides (pedogenic) on vertical faces of peds; slight effervescence; strongly alkaline; gradual wavy boundary.

Range in Characteristics

Solum thickness ranges from 60 to 80 inches. The weighted average clay content of the particle-size control section ranges from 60 to 70 percent. Dry cracks, 1/2-inch to more than 1 inch wide, extend from the surface to a depth of more than 12 inches. Cracks remain open from 60 to 90 cumulative days in most years. Slickensides and wedge-shaped peds begin at a depth of 10 to 24 inches. Undisturbed areas have gilgai microrelief with microhighs about 4 to 12 inches above the microlows. Distance from the center of the microhigh to the center of the microlow ranges from 4 to about

15 feet. Colors with chroma of 2 or less in the subsoil are considered to be lithochromic. Mottles with chroma of 3 or more, or redox concentrations, are considered to be relict or lithochromic.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or less. The A horizon ranges from 2 inches thick on the microhigh to 36 inches thick in the microlow and is about 20 inches in most of the pedons. Reaction ranges from slightly acid to slightly alkaline. Calcium carbonate concretions range from none to few.

The Bss and Bkss horizons have hue of 10YR to 5Y, value of 3 to 7, and chroma of 1 to 6. Matrix is calcareous. Concretions of calcium carbonate range from few to common, being mostly pitted in the upper part. Few soft masses of calcium carbonate range from none to few in the lower Bw horizons. Mottles are in shades of brown, yellow, olive, and gray, and range from few to many. Slickensides range from common to many and are a few inches to a few feet across.

Woodville Series

MLRA: 133B—Western Coastal Plain
Local physiographic area: East Texas Timberlands
Landscape: Coastal plain
Landform: Interfluve
Parent material: Thick beds of unconsolidated clayey coastal plain sediments of Miocene age
Geology: Fleming Formation
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow
Soil depth class: Deep
Shrink-swell potential: High
Slope: 1 to 15 percent

Associated Soils

- Burkeville and Wiergate soils have a black clayey surface.
- Newco soils are moderately well drained and do not have vertic properties.
- Redco soils have a clayey surface.

Taxonomic Classification

Fine, smectitic, thermic Vertic Paleudalfs

Typical Pedon

Woodville very fine sandy loam in an area of Woodville very fine sandy loam, 1 to 5 percent slopes; located from the intersection of U.S. Highway 69 and U.S. Highway 287 in Woodville; 5.5 miles west on U.S. Highway 287, 1.4 miles north on woods road, 0.25 mile west on adjoining woods road to curve, and 30 feet north in woods. Woodville, Texas USGS Quadrangle; Latitude—30 degrees, 50 minutes, 56.50 seconds N., and Longitude—94 degrees, 29 minutes, 38.70 seconds W.

A—0 to 4 inches; brown (10YR 4/3), very fine sandy loam; weak fine subangular blocky structure; friable, hard, moderately plastic; many fine and medium roots and common coarse roots; very strongly acid; clear smooth boundary.

E—4 to 8 inches; pale brown (10YR 6/3), very fine sandy loam; weak fine granular structure; friable, hard, moderately plastic; many fine and medium roots and common coarse roots; very strongly acid; clear wavy boundary.

Bt1—8 to 12 inches; yellowish red (5YR 5/8), clay; 2 percent fine prominent light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm, very hard, very plastic; many fine and medium roots; common

fine and medium clay films on ped faces; very strongly acid; gradual wavy boundary.

Bt2—12 to 22 inches; red (2.5YR 4/8), clay; 5 percent medium prominent light brownish gray (10YR 6/2) and 1 percent medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very firm, very hard, very plastic; common fine and medium clay films on ped faces; many fine roots; very strongly acid; gradual wavy boundary.

Btss1—22 to 30 inches; light gray (10YR 7/2), clay; 5 percent medium prominent red (2.5YR 4/8) and 1 percent medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; very firm, very hard, very plastic; common fine roots; common fine and medium slickensides on ped faces; very strongly acid; gradual wavy boundary.

Btss2—30 to 41 inches; light gray (10YR 7/2), clay; 25 percent coarse prominent red (10R 4/6) and 5 percent medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very firm, very hard, very plastic; common fine roots; common fine and medium slickensides on ped faces; very strongly acid; gradual wavy boundary.

Btss3—41 to 57 inches; light gray (2.5Y 7/2), clay; 5 percent medium distinct yellowish brown (10YR 5/8) mottles; massive; very firm, very hard, very plastic; common fine roots; common fine and medium slickensides on ped faces; very strongly acid; gradual wavy boundary.

Btss4—57 to 67 inches; light gray (2.5Y 7/2), clay; 5 percent medium distinct yellowish brown (10YR 5/8) and 5 percent medium distinct light brownish gray (10YR 6/2) mottles; massive; very firm, very hard, very plastic; common fine roots; common fine and medium slickensides on ped faces; very strongly acid; gradual wavy boundary.

Btss5—67 to 80 inches; light gray (2.5Y 7/2), clay; 25 percent medium distinct brownish yellow (10YR 6/6) mottles; massive; very firm, very hard, very plastic; common fine roots; common fine and medium slickensides on ped faces; 1 percent fine barite crystals; very strongly acid.

Range in Characteristics

Solum thickness ranges from 60 to more than 80 inches. Clay content ranges from 40 to 60 percent in the upper 20 inches of the argillic horizon, and has a COLE of 0.09 or more. Potential linear extensibility is more than 6 centimeters. The combined A and E horizons range from 6 to 15 inches thick.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Texture is very fine sandy loam or loam. Reaction ranges from very strongly acid to slightly acid.

The E horizon has a hue of 10YR, value of 5 to 7, and chroma of 2 to 4. Texture is very fine sandy loam or loam. Mottles in shades of red or brown range from none to many. The boundary between the E and Bt horizon is abrupt or clear, and smooth or wavy, with an abrupt textural change. Reaction ranges from very strongly acid to slightly acid

The upper Bt horizon has hue of 2.5YR to 7.5YR, value of 3 to 7, and chroma of 4 to 8. Mottles range from few to common in shades of red, yellow, brown, or gray and the amount of gray increases with depth. Texture is clay loam, silty clay, or clay. Clay content ranges from 40 to 60 percent in the upper 20 inches of the argillic horizon, and has a COLE of 0.09 or more. Potential linear extensibility is more than 6 centimeters. Reaction is very strongly acid or strongly acid.

The lower Bt horizon is typically variegated in hue of 2.5YR to 2.5Y, value of 3 to 7, and chroma of 1 to 8 with common to many mottles in shades of red, brown, and yellow. Reaction is very strongly acid or strongly acid.

The Btss horizon and BCss horizon, where present, has hue of 2.5YR to 2.5Y, value of 3 to 7, and chroma of 1 to 8. Texture is loam, silty clay loam, clay loam, or

clay. Some pedons contain pitted concretions of calcium carbonate. Reaction ranges from strongly acid to moderately alkaline.

Formation of the Soils

In this section the factors of soil formation are described and related to the formation of the soils of Tyler County. Also, the processes of soil formation and the surface geology of the county are described.

Factors of Soil Formation

A soil is a three-dimensional natural body consisting of mineral and organic material that can support plant growth. The nature of any soil at a given site is the result of the interaction of five general factors-parent material, climate, plants and animals, relief, and time. Climate, plants and animals can have an affect on parent material that is modified by relief over time. Theoretically, if all these factors were identical at different sites, the soils at these sites would be identical. Differences among the soils are caused by variations in one or more of these factors.

Parent Material

Parent material is the unconsolidated mass from which a soil forms. It affects the chemical and mineral composition of the soil. The parent material in Tyler County consists of unconsolidated sandy, loamy, and clayey sediments deposited in fluvial, deltaic, and marine environments during Tertiary (Eocene, Oligocene, Miocene, and Pliocene) and Quaternary (Pleistocene and Holocene) time.

Eocene and Oligocene deposits, including the Manning and Whitsett Formations, are of very minor extent in Tyler County. Miocene deposits in northern portions of the county include the Catahoula Formation and Fleming Formations. The Willis Formation of Pliocene age covers most of Tyler County. Deposits of Pleistocene age include the Lisse Formation and Beaumont Formation and the fluviatile terraces of the Neches River and the many smaller streams. Holocene deposits are primarily on flood plains of the Neches River and its tributaries.

Soils of the Catahoula Formation include Colita, Corrigan, Rayburn, Browndell, Laska, and Kitterll. These soils have loamy and clayey subsoil horizons. Soils of the Fleming Formation are Woodville, Redco, Wiergate, and Burkeville. These soils have clayey subsoil horizons.

Soils of the Willis Formation include Colmesneil, Chambliss, Choates, Bonwier, Boykin, Doucette, Hillister, Newco, Pinetucky, Rogan, Shankler, Stringtown, Urland, and Waller. Soils in these areas vary greatly, but mainly have loamy and clayey subsoil horizons.

Soils of the Lissie Formation include Otanya, Kirbyville, Belrose, Dallardsville, Caneyhead, Jayhawker, Niwana, Nona, Olive, Plank, Silsbee, Kenefick, Kountze, Sorter, Tyden, and Babco. These soils mainly have loamy subsoil horizons.

Soils of the Beaumont Formation include Evadale and Waller. Most of these soils have clayey subsoil horizons.

Fluviatile terraces are along the larger rivers and streams and may include wind-reworked alluvial deposits. Soils in these areas are Alazan, Hainesville, Besner, Mollville, Gallime, Sawlit, Sawtown, Spurger, Turkey, and Votaw. These soils vary greatly, but most have loamy and sandy subsoil horizons.

Younger soils that have minimal horizon development and are associated with channel, oxbow, and (primarily) flood plain deposits include Bleakwood, Iulus, Cypress, Estes, Angelina, Ozias, Pophers, and Koury. They have loamy and clayey subsoil horizons.

Climate

The climate of Tyler County is humid. Rainfall, evaporation, and temperature are the main climatic influences. The moderate to large amount of rainfall has promoted moderately rapid soil development throughout the survey area. Rainfall is uniform over the area, although its effect is modified locally by runoff caused by slope. Because of the uniformity in climate, the differences between soils are not attributed to climatic differences.

Plant and Animal Life

Plants, insects, microorganisms, crayfish, earthworms, and other living organisms have contributed to the development of the soils. Gains in organic matter and nitrogen content of the soil, gains or losses in plant nutrients, and changes in structure and porosity are caused by plant and animal life.

Vegetation, dominantly trees, has greatly affected soil formation in the county. Soils that formed under trees are generally low in organic matter content and light in color.

The soils of the Wiergate series are the only soils in the survey area that have been greatly affected by grasses. Wiergate soils are dark and are relatively high in organic matter content.

Relief

Relief (or topography) influences soil development through its effect on drainage, runoff, and depth of penetration by soil moisture.

The topography of the survey area ranges from nearly level to hilly. The nearly level areas consist of flood plains and terraces in the southern part of the survey area. The sloping areas are mostly in the northern part of the survey area.

If other factors are equal, the degree of the soil profile development depends on the amount of and depth of penetration by soil moisture. The more often a soil passes through a wetting and drying cycle, the more distinct is the soil development.

Soils on a nearly level landscape tend to have marked differences in soil development. Nearly level areas that are poorly drained and that remain saturated much of the time generally do not have pronounced soil horizonation. These soils generally are not developed below a depth of 60 inches. Nearly level soils that are well drained generally are distinctly developed to depths greater than 80 inches.

Most of the gently sloping and sloping soils are developed to depths greater than 60 inches. Generally, as slope increases above 8 percent, there is a decrease in the depth of water penetration. Since much of the water is removed by runoff, the soils on the more sloping areas tend to be shallower. For example, the Browndell soils are mostly sloping to hilly and are shallow to tuffaceous sandstone.

Time

A great length of time is required for the formation of soils with distinct horizons. The differences in the length of time that the parent material has been subjected to soil-forming processes are commonly reflected in the degree of development of soil horizons. Young soils have very little horizon development and old soils have well expressed horizons.

Bleakwood and Iulus soils are young soils. They are forming on flood plain landforms on which sediment is continuously added during flood events. These soils have minimal soil horizon development.

The Alazan and Besner soils are of intermediate age. They are on fluviatile terraces that are older surfaces and occur higher in the landscape than flood plains. These soils have argillic horizons that are currently being degraded as clays and free iron oxides are leached and removed

Advanced stages of development are evident in the Pinetucky and Doucette soils. These soils have distinct horizonation with well-developed argillic horizons, nearly all of the bases have been leached, and iron-enriched nodules have accumulated in lower subsoil horizons.

Processes of Horizon Differentiation

Tyler County is in the West Gulf Coastal Plain geomorphic province. Most of the geologic formations crop out in broad, northeast-trending bands that dip gently gulfward and parallel the Texas Gulf Coast shoreline. The parent materials of these soils range in age from less than 10,000 years (Holocene alluvium) to more than 35 million years (Manning Formation of Eocene age).

Catahoula Formation

The Catahoula Formation of late Oligocene to early Miocene age is almost co-extensive with the Rayburn-Colita-Corrigan general soil map unit in which the Laska, Colita, Corrigan, Browndell, Kitterll, and Rayburn series are found. The Catahoula Formation and associated soils occur in a band 2.25 to 6 miles in width across northern Tyler County.

This formation is the most bentonitic and tuffaceous of the Tertiary formations in eastern Texas and represents the culmination of a rain of volcanic ash beginning in Eocene time, and continuing through Oligocene and early Miocene time. The ash was blown in from sources in northwestern Mexico, New Mexico, and Trans-Pecos, Texas. The Catahoula Formation is largely fluviatile in origin and continues the regression or outbuilding of the shoreline as found in the geologically older Jackson Group. The lithologies include channel and point bar sandstones and levee and crevasse splay sandstones, siltstones, and mudstones. All of these deposits contain volcanic ash either as weathered bentonitic clays, in place or reworked, or as reworked volcanic ash. Lacustrine deposits may contain un-reworked volcanic materials.

Siliceous pebbles, apparently unrelated to the parent materials of the soils of the Catahoula Formation general soil map units, are found in upper parts of the soil profiles.

Fleming Formation

The Fleming Formation of Miocene age overlies the Catahoula Formation and is largely fluviatile in origin across the survey area. However, farther east in Newton County, deltaic and brackish-water marine sediments occur. The formation consists of calcareous clay and silt associated with flood basin and levee deposits and calcite-cemented, cross-bedded sandstones associated with channel and point bar deposits. Clayey strata in the Fleming Formation contain many calcareous concretions and caliche fragments that did not precipitate in situ and are thought to be derived from the erosion of contemporaneous or older caliche horizons. Siliceous gravels generally associated with the fluvial sediments seem to be absent.

Clayey strata in the Fleming Formation are the parent sediments for vertisols such as Burkeville, Redco, and Wiergate, and Woodville soils, mainly in the

Burkeville-Woodville-Redco general soil map unit. The Woodville soil is acidic and does not have calcareous concretions. However, this soil is more alkaline in the lower part of the profile, which may be the result of deep leaching of calcium carbonate. Perhaps most, if not all, of the Fleming Formation outcrop was at one time covered with the younger, stratigraphically higher Willis Formation that is now represented by the Pinetucky and Stringtown soils on hilltops and side slopes of the Burkeville-Woodville-Redco general soil map unit. Soils associated with the Willis Formation are commonly found on broad areas shown as being Fleming Formation on the Geologic Atlas of Texas sheets. Continued geologic erosion of the area will expose more extensive outcrops of the clayey, calcareous Fleming Formation, currently associated with Woodville soils. The upper solum of Woodville soils consists of loamy reworked sediments, possibly derived from the Willis Formation, while the lower solum is vertic clay of the Fleming Formation.

Hilltop positions are not uniformly exposures of the Willis Formation. In some cases, Fleming Formation soils are topographically higher than Willis Formation soils. The fluviatile Willis Formation was probably initially deposited on an erosional Fleming Formation surface, with the Fleming Formation for a time locally occupying higher topographic positions. Later, the Fleming Formation interfluves would be covered by continued Willis Formation deposition. Upon erosion of the Willis Formation, these Fleming Formation “highs” would be exposed. In addition, some Willis Formation materials in lower topographic positions may be the result of mass-wasted deposits from higher elevations that moved downslope upon dissection of the landscape and were subsequently re-cemented by iron oxides.

Willis Formation

The Willis Formation occupies the most extensive area of the local geological units, and includes most of the Shankler-Hillister-Doucette general soil map unit. Soils that are generally mapped on parent sediments of the Willis Formation are the Bonwier, Boykin, Chambliss, Choates, Colmesneil, Doucette, Hillister, Newco, Pinetucky, Rogan, Shankler, and Urland soil series.

The age of the Willis Formation is in dispute because of the absence of both diagnostic fossils and volcanic ash deposits. Some strata of these deposits may be radiometrically dated. Conjectures concerning placement of the Willis Formation in the geologic column have ranged from upper Pliocene, Plio-Pleistocene, early pre-glacial Pleistocene, to early Pleistocene contemporaneous with worldwide glaciations. Based on the probable correlation of the Willis Formation with the Citronelle Formation, which extends from Louisiana to western Florida, where it may merge with a fossiliferous marine deposit, a Plio-Pleistocene age seems reasonable.

The Willis Formation is fluviatile in origin and includes cross-bedded and horizontally bedded sand and gravel deposits associated with channels and point bars and sandy and silty clays associated with overbank, levee, and flood basin deposits. The general absence of clay suggests deposition by streams deficient in suspended load, as opposed to the high-suspended loads of streams resulting in Fleming Formation deposits. Clay clasts that are very coarse, sand-sized and rounded can be seen in better preserved Willis Formation exposures. These clasts were derived by erosion from either older or contemporaneous deposits. The puzzling and common occurrence of gravel in clayey deposits of the Willis Formation that lack sedimentary structures or bedding may be the result of the breakdown of these clayey clasts by weathering and mass-wasting processes. In deep road cuts and in sand and gravel pits, the Willis Formation can be pigmented and cemented by red, brown, and purple ferric iron oxides to a depth, in some places, of more than 12 feet. Considering the great depth of weathering indicated by iron oxide formation, it is possible that sola associated with land-surface soils may actually be forming in paleosols of great thickness.

The absence of bedding and the occasional obvious distortion of bedding may be (in some places) the product of plinthite formation and the disruptive or expansive effects of the formation of hydrous iron oxides. The absence of bedding may also be related to the depositional environment during Eocene time or erosional dissection of the Willis Formation, which may provide the slope necessary for down slope mass-wasting effects. Upper slope material thus transported and deposited would not exhibit bedding and might later be stabilized and cemented or re-cemented by iron oxides.

Willis Formation remnants, in the form of thin beds of sands and gravels, or simply red, leached, non-calcareous clayey and silty material, covers most of the outcrop area of the Fleming Formation. The presence of the Fleming Formation in the lower part of the soil solum or parent material may be manifested only by the vertic properties and/or an increase in alkalinity.

The large number of soils series and map units associated with the Willis Formation outcrop area result from the complexity of fluvial depositional environments, the range of available slopes resulting from erosional dissection, the effects of mass-wasting, the proximity of the underlying Fleming Formation, and the probable eolian reworking of some surface sands.

Many of the individual exposures of soil profiles developed on geologic formations older than the Fleming Formation (e.g., Catahoula Formation), as seen in road cuts, excavations, and stream cuts, display siliceous gravels up to 3 inches across, either within the surface horizon(s) or along the contact between the surface horizon(s) and the subsoil. This contact is often well defined by a clear or abrupt boundary and, in many places, the only appreciable volume of gravel in the soil profile lies immediately above this boundary. These gravel occurrences look similar to the classic “stone lines” described from many places in the world and suggest alluvial deposition with a fining-upward sequence.

Lissie Formation (formerly Bentley Formation)

The Lissie Formation immediately overlies and crops out eastward of the Willis Formation. The Lissie Formation in this survey area, formerly known as the Bentley Formation, is the older (lower) part of the Lissie Formation. The younger (upper) part of the Lissie Formation, formerly known as the Montgomery Formation, is absent in this survey area.

The Lissie Formation is the oldest of the Pleistocene geologic formations in this area and its deposition was probably influenced by large-scale changes in sea level during the period in which continental glaciers advanced and retreated.

The soils developed on the Lissie Formation are principally within the Otanya-Kirbyville-Waller and the Dallardsville-Otanya-Kountze general soil map units, and are in the area known as the Flatwoods. The Dallardsville, Kirbyville, Otanya, Kountze, Sorter, Spurger, and Waller soil series and their associated map units are characteristic of the Lissie Formation lithologies and topography. The relatively small number of map units and generally flat terrain are a result of the absence of significant erosional dissection and a lack of complicating residual covers of older formations.

Sedimentary deposits in the Lissie Formation, similar to older geologic formations in Tyler County, have a fluviatile origin. A common view of geologists is that extensive areas of Pleistocene outcrops, such as the Lissie Formation, were deposited during interglacial periods, or episodes of net rising and high-standing sea level that separated major expansions of continental ice sheets (glacial periods). Glacial periods resulted in regressive sedimentation associated with sea level retreat and land emergence. Interglacial periods resulted in transgressive sedimentation associated with sea level rise and flooding of the continental shelves previously exposed during times of low sea level. The lowering of sea level resulted from the

incorporation of water from oceanic sources into continental glaciers or ice sheets. Depositional environments of the Lissie Formation were probably similar to Holocene alluvial deposits of the Neches River following the most recent rise of sea level that reached a high stand approximately five thousand years ago.

Surface expression of fluvial and deltaic landforms, including channels, point bars, distributary channels, and flood plains, is less well preserved on exposures of the Lissie Formation than younger Pleistocene (Beaumont Formation) and Holocene surfaces. The main surface patterns on the Lissie Formation are rather amorphous distributions of soil map units, such as the Sorter and Waller soils on flat or very gently sloping surfaces to the broader, more steeply sloping surfaces underlain by the Otanya soils. The original depositional patterns and associated landforms are less evident today because of a combination of the effects of wind deflation and sediment reworking, rill and sheet erosion, and small scale but cumulatively effective windthrows and similar disturbances in intermittently forested areas over the past few thousand years.

The Lissie Formation surface has two small-scale geomorphic features—enclosed depressions and pimple mounds—that characterize some soil series and soil map units.

The enclosed depressions are shallow and intermittently dry, and are mapped as Lelavale silt loam. They are elliptical to round in shape, generally less than 1,000 feet in diameter, and occur on flat landscapes, especially in the Dallardsville-Otanya-Kountze general soil map unit. Some depressions are located on flat, small-scale interfluves between shallow drains. In a few places, depressions are located at the heads of tributaries. This latter occurrence suggests that location of some tributaries is related to infrequent overflow from these depressions in proximity to broad drains. Regardless of origin, they appear to be in an aggradational rather than excavational phase at present. A “blowout,” wind deflationary hypothesis may be the best explanation for the origin of the enclosed depressions. Although blow-out dunes on the leeward side of these depressions are absent, this material may have been subsequently scattered and incorporated into the surrounding topsoil. Other explanations for the origin of these depressions, including piping, subsidence because of subsurface dissolution, or remnants of an ancestral fluvial surface pattern, do not seem applicable.

Pimple mounds on the Lissie Formation surface are primarily associated with the Kirbyville, Niwana, Sorter, and Waller soils. The mounds, or microhighs, average from 50 to 100 feet in diameter, less than 3 feet in height, and are round to elliptical in shape. They are somewhat less defined than the mounds on younger, geologic formations on the Texas Gulf Coast, such as the Beaumont Formation in Hardin County. Mounds on Tyler County exposures of the Lissie Formation generally have a different soil component mapped on the mounds versus the intermounds, with the subsoil horizons occurring at differing levels between these two features. However, mounds in younger geologic formations may simply have a thicker surface layer with subsoil horizons at the same level as the intermounds. This difference would suggest that, over time, the mound-intermound relationship affects near subsurface hydrology and (as a result) soil profile morphology.

Post-Lissie Stream Terraces and Holocene Alluvium

The Quaternary geological units, including the Late Pleistocene Deweyville Formation and Holocene alluvium, differ from previously discussed units. These deposits are associated with stream terraces and flood plains on streams that are generally oriented perpendicular to Tertiary geologic outcrops that parallel the Texas Gulf Coast shoreline.

The Deweyville Formation sediments have coarser sands than Holocene alluvium, and the Kenefick-Belrose-Votaw general soil map unit is mapped on these deposits. Along the Neches River, the Deweyville Formation includes some low-lying parts of the Sawlit-Woodville-Mollville general soil map unit, especially in the northeastern part of the county flanking B. A. Steinhagen Lake.

The Deweyville Formation is named for the town of Deweyville in southern Newton County, where the low stream terrace surface of this formation occupies a position intermediate between exposures of the Beaumont Formation and flood plains of Holocene alluvium. Deweyville sediments are mainly sands with some gravels less than 3/4-inch in diameter. The surface is characterized by oxbows, cutoff meanders, and point bar deposits with bar and channel topography. All of these meander belt landforms display radii of curvature greater than those associated with meanders of the present-day Neches River.

Large meander scars scallop the edge of uplands bounding the Deweyville Formation. Because the size of stream meanders is proportional to the discharge of a stream, the ancestral Neches River was likely considerably larger when the Deweyville Formation was laid down than it is at present. Higher discharge was probably the result of greater precipitation during some phase of the continental glacier advance and retreat cycle.

The youngest geologic unit in the area is Holocene alluvium on the flood plains of the Neches River and its tributaries. This unit is also associated with shallow drainageways. Flood plain deposits of major streams are represented by the Ozias-Estes-Koury general soil map unit, while minor stream deposits are represented by the Iulus-Bleakwood general soil map unit. Coarser alluvial parent sediments in Iulus soils may relate to minor streams that head in the sandy Willis Formation. Finer flood plain deposits of major streams, derived from erosion of Fleming Formation clays, are the parent sediments for Ozias soils.

The Holocene alluvium is graded to present day sea level and was deposited following the last glacial advance and during the latter part of rising sea level and (primarily) the standing sea-level stage. The older Deweyville deposits may represent the very earliest stages in the backfilling of the initially deepened valleys, during a time of higher rainfall and stream discharge. The Holocene alluvium probably represents the later stages under decreased rainfall and discharge conditions.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bottomland. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop resibecause of the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop resibecause of the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained*, and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Ecological site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the

field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A, O, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—f*aint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Very slow	less than .06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Pleistocene. The epoch of the Quaternary Period of geologic time, following the Pliocene Epoch and preceding the Holocene (from about 2 million to 10 thousand years ago); also the corresponding (time-stratigraphic) “series” of earth materials.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a given series have horiizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by induration of a clay, silty clay, or silty clay loam deposit and having the tendency to split into thin layers.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 1 percent
Very gently sloping	1 to 3 percent
Gently sloping	3 to 5 percent
Moderately sloping	5 to 8 percent
Strongly sloping	8 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 45 percent
Very steep	45 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Underlying material. The part of the soil below the solum.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Spurger Dam B, Texas)

Month	Temperature (Degrees F)						Precipitation (Inches)			
				2 years in 10 will have		Average number of growing degree days*		2 years in 10 will have		Average number of days w/0.1 or more
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than	Minimum temperature less than		Average	less than	more than	
January	58.7	37.4	48.0	79	17	100	5.08	2.31	7.60	7
February	63.5	40.5	52.0	83	21	145	3.97	1.70	5.89	5
March	70.8	48.3	59.6	87	25	320	4.56	2.67	6.43	6
April	77.0	54.5	65.8	88	34	474	4.41	1.68	7.12	4
May	83.6	63.0	73.3	93	46	722	5.61	3.19	7.70	6
June	89.3	69.1	79.2	97	56	872	5.74	2.63	8.39	7
July	92.3	71.3	81.8	100	63	985	3.35	1.54	5.18	5
August	92.6	70.6	81.6	101	61	979	3.42	1.13	5.66	5
September	88.0	66.3	77.2	99	47	814	4.17	1.75	6.25	5
October	79.4	55.5	67.5	92	35	539	3.68	1.58	5.67	4
November	69.0	47.3	58.2	86	26	277	5.00	2.28	7.55	5
December	61.7	39.8	50.8	80	18	137	5.56	3.10	7.85	6
Yearly:										
Average	77.2	55.3	66.2							
Extreme	109	6	---	102	15					
Total	---	---	---	---	---	6,365	54.54	45.38	61.87	65

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 50.0 deg. F)

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Spurger Dam B, Texas)

Probability	Temperature		
	24°F or lower	28°F or lower	32°F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 2	March 16	March 28
2 years in 10 later than--	February 20	March 6	March 21
5 years in 10 later than--	January 29	February 16	March 7
First freezing temperature in fall:			
1 year in 10 earlier than--	December 6	November 9	November 1
2 years in 10 earlier than--	December 14	November 17	November 7
5 years in 10 earlier than--	December 30	December 3	November 19

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Spurger Dam B, Texas)

Probability	Daily Minimum Temperature		
	Number of days higher than 24°F	Number of days higher than 28°F	Number of days higher than 32°F
	Days	Days	Days
9 years in 10	289	246	230
8 years in 10	303	260	240
5 years in 10	338	289	258
2 years in 10	> 365	318	277
1 year in 10	> 365	333	287

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AaB	Alazan very fine sandy loam, 0 to 4 percent slopes	7,630	1.3
BcA	Belrose-Caneyhead complex, 0 to 1 percent slopes	9,374	1.6
BiB	Belrose loamy very fine sand, 1 to 3 percent slopes	9,590	1.6
BoB	Boykin loamy sand, 1 to 5 percent slopes	7,928	1.3
BrC	Browndell-Kitterll complex, 2 to 5 percent slopes	2,438	0.4
BrD	Browndell-Kitterll complex, stony, 5 to 15 percent slopes	3,140	0.5
BrG	Browndell-Kitterll complex 15 to 35 percent slopes, very bouldery	181	*
BuB	Burkeville clay, 3 to 5 percent slopes	6,259	1.0
BuD	Burkeville clay, 5 to 15 percent slopes	4,763	0.8
CgA	Chambliss loamy sand, 0 to 8 percent slopes	1,465	0.2
CiA	Choates loamy sand, 1 to 5 percent slopes	11,808	2.0
CkB	Colita fine sandy loam, 1 to 3 percent slopes	9,508	1.6
CkC	Colita-Laska complex, mounded, 0 to 3 percent slopes	5,044	0.8
CmB	Colmesneil loamy sand, 1 to 8 percent slopes	870	0.1
CoB	Corrigan loam, 1 to 5 percent slopes	2,844	0.5
CoE	Corrigan loam, 5 to 15 percent slopes	4,302	0.7
CyA	Cypress mucky clay, 0 to 1 percent slopes, frequently flooded	4,357	0.7
DoB	Doucette loamy sand, 1 to 5 percent slopes	33,179	5.5
EtA	Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded	10,228	1.7
EvA	Evadale silt loam, 0 to 1 percent slopes	453	*
GPI	Pits, gravel	98	*
HaA	Hainesville loamy fine sand, 0 to 2 percent slopes	897	0.1
HhD	Hillister loamy sand, 5 to 15 percent slopes	31,020	5.2
IbA	Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded	42,795	7.1
JhA	Jayhawker silt loam, 0 to 1 percent slopes	388	*
KeB	Kenefick very fine sandy loam, 1 to 3 percent slopes	1,362	0.2
KfA	Kenefick-Caneyhead complex, 0 to 1 percent slopes	9,760	1.6
KgA	Kirbyville-Niwana complex, 0 to 1 percent slopes	11,796	2.0
KiB	Kirbyville fine sandy loam, 0 to 2 percent slopes	18,698	3.1
KnB	Kountze very fine sandy loam, 0 to 2 percent slopes	9,763	1.6
KoA	Koury very fine sandy loam, 0 to 1 percent slopes, frequently flooded	8,972	1.5
Lb	Laneville fine sandy loam, 0 to 1 percent slopes, frequently flooded	3,866	0.6
LcB	Laska fine sandy loam, 1 to 3 percent slopes	2,369	0.4
LvA	Lelavale silt loam, 0 to 1 percent, ponded	2,093	0.3
MpA	Mollville-Besner complex, 0 to 1 percent slopes	3,779	0.6
NhB	Newco fine sandy loam, 1 to 5 percent slopes	9,952	1.7
NhD	Newco fine sandy loam, 5 to 15 percent slopes	7,572	1.3
NoA	Nona-Dallardsville complex, 0 to 1 percent slopes	117	*
OiA	Olive-Dallardsville complex, 0 to 1 percent slopes	5,098	0.8
OtB	Otanya very fine sandy loam, 1 to 3 percent slopes	40,160	6.7
OtC	Otanya fine sandy loam, 3 to 5 percent slopes	9,266	1.5
Oz	Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded	18,039	3.0
PkA	Plank silt loam, 0 to 1 percent slopes	798	0.1
PmB	Pinetucky fine sandy loam, 1 to 5 percent slopes	30,481	5.1
RaB	Rayburn fine sandy loam, 1 to 5 percent slopes	3,160	0.5
RaD	Rayburn fine sandy loam, 5 to 15 percent slopes	6,054	1.0
ReB	Redco clay, 1 to 3 percent slopes	7,305	1.2
ReD	Redco clay, 5 to 15 percent slopes	3,660	0.6
RrB	Rogan gravelly fine sandy loam, 1 to 5 percent slopes	1,878	0.3
RrF	Rogan soils, 1 to 5 percent slopes, graded	1,388	0.2
SeD	Sawlit-Sawtown complex, 1 to 3 percent slopes	10,377	1.7
ShB	Shankler loamy sand, 1 to 8 percent slopes	19,281	3.2
ShD	Shankler loamy sand, 8 to 15 percent slopes	19,042	3.2
SiC	Silsbee fine sandy loam, 3 to 5 percent slopes	4,262	0.7
SiD	Silsbee fine sandy loam, 5 to 12 percent slopes	7,834	1.3
SnA	Sorter-Dallardsville complex, 0 to 1 percent slopes	14,358	2.4
SsA	Spurger-Caneyhead complex, 0 to 1 percent slopes	2,645	0.4
StM	Stringtown-Bonwier complex, 5 to 15 percent slopes	27,400	4.6
TuB	Turkey sand, 1 to 3 percent slopes	2,718	0.5
TyA	Tyden-Babco complex, 0 to 1 percent slopes	3,204	0.5

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
UrB	Urland fine sandy loam, 1 to 5 percent slopes	4,797	0.8
VoA	Votaw fine sand, 0 to 1 percent slopes	3,584	0.6
W	Water	8,212	1.4
WbA	Waller-Dallardsville complex, 0 to 1 percent slopes	8,930	1.5
WcB	Wiergate clay, 1 to 3 percent slopes	3,275	0.5
WnB	Woodville very fine sandy loam, 1 to 5 percent slopes	12,128	2.0
WnD	Woodville fine sandy loam, 5 to 15 percent slopes	16,873	2.8
WnS	Woodville-Sawlit complex, 1 to 3 percent slopes	3,179	0.5
	Total	600,044	100.0

* Less than 0.1 percent.

Table 5.--Prime and Other Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soilslisted are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Map unit name	Farmland Classification
AaB	Alazan very fine sandy loam, 0 to 4 percent slopes	All areas are prime farmland
BiB	Belrose loamy very fine sand, 1 to 3 percent slopes	All areas are prime farmland
BoB	Boykin loamy sand, 1 to 5 percent slopes	All areas are prime farmland
CkB	Colita fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland
CkC	Colita-Laska complex, mounded, 0 to 3 percent slopes	All areas are prime farmland
KeB	Kenefick very fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland
KgA	Kirbyville-Niwana complex, 0 to 1 percent slopes	All areas are prime farmland
KnB	Kountze very fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland
OtB	Otanya very fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland
OtC	Otanya fine sandy loam, 3 to 5 percent slopes	All areas are prime farmland
PmB	Pinetucky fine sandy loam, 1 to 5 percent slopes	All areas are prime farmland
ReB	Redco clay, 1 to 3 percent slopes	All areas are prime farmland
RrB	Rogan gravelly fine sandy loam, 1 to 5 percent slopes	All areas are prime farmland
RrF	Rogan soils, 1 to 5 percent slopes, graded	All areas are prime farmland
SeD	Sawlit-Sawtown complex, 1 to 3 percent slopes	All areas are prime farmland
UrB	Urland fine sandy loam, 1 to 5 percent slopes	All areas are prime farmland
WcB	Wiergate clay, 1 to 3 percent slopes	All areas are prime farmland
WnS	Woodville-Sawlit complex, 1 to 3 percent slopes	All areas are prime farmland
BcA	Belrose-Caneyhead complex, 0 to 1 percent slopes	Prime farmland if drained
EvA	Evadale silt loam, 0 to 1 percent slopes	Prime farmland if drained
KfA	Kenefick-Caneyhead complex, 0 to 1 percent slopes	Prime farmland if drained
KiB	Kirbyville fine sandy loam, 0 to 2 percent slopes	Prime farmland if drained
WbA	Waller-Dallardsville complex, 0 to 1 percent slopes	Prime farmland if drained

Table 6.--Non-Irrigated Yields by Map Unit Component

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	AUM	AUM
AaB:				
Alazan	2w	6.00	5.00	7.00
BcA:				
Belrose	2w	---	---	---
Caneyhead	4w	---	---	---
BiB:				
Belrose	2w	---	---	---
BoB:				
Boykin	3s	8.00	6.00	10.00
BrC:				
Browndell	4e	---	---	4.50
Kitterll	7s	---	---	---
BrD:				
Browndell	6e	---	---	4.00
Kitterll	7s	---	---	---
BrG:				
Browndell	6e	---	---	4.00
Kitterll	7s	---	---	---
BuB:				
Burkeville	4e	4.00	---	4.00
BuD:				
Burkeville	6e	4.00	---	4.00
CgA:				
Chambliss	3s	---	---	6.00
CiA:				
Choates	3w	8.00	6.00	9.00
CkB:				
Colita	3w	6.00	4.50	5.50
CkC:				
Colita	3w	6.00	4.50	5.50
Laska	2w	7.00	7.00	9.00
CmB:				
Colmesneil	3s	---	---	3.00
CoB:				
Corrigan	4e	4.50	4.00	---

Table 6.--Non-Irrigated Yields by Map Unit Component--Continued

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	AUM	AUM
CoE:				
Corrigan	4e	4.50	4.00	---
CyA:				
Cypress	8w	---	---	---
DoB:				
Doucette	3s	8.00	6.00	10.00
EtA:				
Estes	5w	---	---	---
Angelina	6w	---	---	---
EvA:				
Evadale	4w	5.00	---	4.00
GPI:				
Pits	8s	---	---	---
HaA:				
Hainesville	2s	6.50	7.00	11.00
HhD:				
Hillister	6e	2.00	2.00	3.00
IbA:				
Iulus	5w	---	---	---
Bleakwood	5w	---	---	---
JhA:				
Jayhawker	4w	---	---	---
KeB:				
Kenefick	2e	8.00	8.00	10.00
KfA:				
Kenefick	2e	8.00	8.00	10.00
Caneyhead	4w	---	---	---
KgA:				
Kirbyville	2w	6.00	6.00	8.00
Niwana	2w	8.00	6.00	10.00
KiB:				
Kirbyville	2w	6.00	6.00	8.00
KnB:				
Kountze	2w	8.00	---	6.00
KoA:				
Koury	5w	9.00	7.00	10.00
Lb:				
Laneville	5w	6.00	6.00	8.00

Table 6.--Non-Irrigated Yields by Map Unit Component--Continued

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	AUM	AUM
LcB:				
Laska	2w	7.00	7.00	9.00
LvA:				
Lelavale	6w	---	---	---
MpA:				
Mollville	4w	4.00	4.00	---
Besner	2e	7.00	---	9.00
NhB:				
Newco	3e	6.00	5.00	8.00
NhD:				
Newco	6e	5.00	4.00	6.00
NoA:				
Nona	7w	---	---	---
Dallardsville	2w	---	---	---
OiA:				
Olive	6w	---	---	---
Dallardsville	2w	---	---	---
OtB:				
Otanya	2e	8.00	7.00	10.00
OtC:				
Otanya	2e	7.00	6.00	9.00
Oz:				
Ozias	5w	3.00	3.00	3.00
Pophers	5w	4.00	4.00	4.00
PkA:				
Plank	4w	4.00	3.00	4.00
PmB:				
Pinetucky	3e	8.00	7.00	10.00
RaB:				
Rayburn	4e	---	---	5.00
RaD:				
Rayburn	6e	---	---	4.50
ReB:				
Redco	3e	5.00	---	6.00
ReD:				
Redco	3e	5.00	---	6.00
RrB:				
Rogan	3e	8.00	---	9.00
RrF:				
Rogan	3e	8.00	---	9.00

Table 6.--Non-Irrigated Yields by Map Unit Component--Continued

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	AUM	AUM
SeD:				
Sawlit	2w	6.00	5.00	7.00
Sawtown	2e	8.00	7.00	10.00
ShB:				
Shankler	3s	---	---	6.00
ShD:				
Shankler	4e	---	---	5.00
SiC:				
Silsbee	4e	7.00	---	7.00
SiD:				
Silsbee	4e	6.00	---	6.00
SnA:				
Sorter	4w	---	---	---
Dallardsville	2w	---	---	---
SsA:				
Spurger	3e	8.00	5.00	8.00
Caneyhead	4w	4.00	4.00	---
StM:				
Stringtown	6e	6.00	5.00	7.00
Bonwier	6e	5.00	4.00	6.00
TuB:				
Turkey	4s	---	---	2.00
TyA:				
Tyden	4w	---	---	2.00
Babco	3s	---	---	---
UrB:				
Urland	3e	8.00	6.00	10.00
VoA:				
Votaw	3w	---	---	7.50
W:				
Water	---	---	---	---
WbA:				
Waller	4w	---	---	---
Dallardsville	2w	---	---	---
WcB:				
Wiergate	4e	5.50	---	6.00
WnB:				
Woodville	3e	6.00	5.00	8.00

Table 6.--Non-Irrigated Yields by Map Unit Component--Continued

Map symbol and soil name	Land capability	Bahiagrass	Common bermudagrass	Improved bermudagrass
		AUM	AUM	AUM
WnD:				
Woodville	6e	5.00	4.00	6.00
WnS:				
Woodville	3e	2.00	---	---
Sawlit	2w	6.00	5.00	7.00

Table 7.--Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
AaB:				
Alazan	loblolly pine	95	143	loblolly pine, slash pine, sweetgum
	shortleaf pine	---	0	
	sweetgum	---	0	
	southern red oak	---	0	
BcA:				
Belrose	loblolly pine	99	143	loblolly pine
Caneyhead	loblolly pine	82	114	loblolly pine, sweetgum, water oak
	sweetgum	80	86	
	water oak	80	72	
	willow oak	80	72	
BiB:				
Belrose	loblolly pine	99	143	loblolly pine
BoB:				
Boykin	loblolly pine	90	129	loblolly pine
	longleaf pine	80	100	
	shortleaf pine	80	129	
BrC:				
Browndell	loblolly pine	60	72	loblolly pine, longleaf pine, shortleaf pine
	longleaf pine	50	29	
	shortleaf pine	50	72	
Kiterll	---	---	---	---
BrD:				
Browndell	loblolly pine	60	72	loblolly pine, longleaf pine, shortleaf pine
	longleaf pine	50	29	
	shortleaf pine	50	72	
Kiterll	---	---	---	---
BrG:				
Browndell	loblolly pine	60	72	loblolly pine, longleaf pine, shortleaf pine
	longleaf pine	50	29	
	shortleaf pine	50	72	
Kiterll	---	---	---	---
BuB:				
Burkeville	loblolly pine	56	72	---
	shortleaf pine	50	72	
BuD:				
Burkeville	loblolly pine	56	72	---
	shortleaf pine	50	72	
CgA:				
Chambliss	loblolly pine	80	114	---
CiA:				
Choates	loblolly pine	90	129	loblolly pine, southern red oak, sweetgum
	shortleaf pine	80	129	
	sweetgum	70	57	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CkB:				
Colita	loblolly pine	79	114	loblolly pine, slash pine
	longleaf pine	82	100	
CkC:				
Colita	loblolly pine	79	114	loblolly pine, slash pine
	longleaf pine	82	100	
Laska	loblolly pine	90	129	loblolly pine, slash pine
	slash pine	90	157	
	shortleaf pine	80	129	
CmB:				
Colmesneil	loblolly pine	83	114	loblolly pine
	shortleaf pine	80	129	
CoB:				
Corrigan	loblolly pine	84	114	loblolly pine, longleaf pine, shortleaf pine
	longleaf pine	80	100	
	shortleaf pine	70	114	
CoE:				
Corrigan	loblolly pine	84	114	loblolly pine, longleaf pine, shortleaf pine
	longleaf pine	80	100	
	shortleaf pine	70	114	
CyA:				
Cypress	baldcypress	78	43	baldcypress
DoB:				
Doucette	loblolly pine	90	129	loblolly pine
	longleaf pine	80	100	
	shortleaf pine	80	129	
EtA:				
Estes	green ash	---	0	American sycamore, loblolly pine, sweetgum, water oak
	sweetgum	93	114	
	water oak	93	86	
	willow oak	86	86	
Angelina	---	---	---	---
EvA:				
Evadale	loblolly pine	98	157	---
GPI:				
Pits	---	---	---	---
HaA:				
Hainesville	loblolly pine	96	143	loblolly pine, shortleaf pine
	longleaf pine	88	114	
	shortleaf pine	75	114	
HhD:				
Hillister	loblolly pine	87	129	loblolly pine
	shortleaf pine	77	129	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
IbA:				
Iulus	loblolly pine	103	---	loblolly pine, sweetgum
	sweetgum	100	143	
	water oak	100	100	
Bleakwood	water oak	90	86	water oak
	willow oak	90	86	
JhA:				
Jayhawker	loblolly pine	87	---	loblolly pine
KeB:				
Kenefick	loblolly pine	102	143	black walnut, loblolly pine, southern red oak, sweetgum
	shortleaf pine	85	143	
	southern red oak	---	0	
	sweetgum	---	0	
KfA:				
Kenefick	loblolly pine	96	143	black walnut, loblolly pine, southern red oak, sweetgum
	shortleaf pine	85	143	
	southern red oak	---	0	
	sweetgum	---	0	
Caneyhead	loblolly pine	82	114	loblolly pine, sweetgum, water oak
	sweetgum	80	86	
	water oak	80	72	
	willow oak	80	72	
KgA:				
Kirbyville	loblolly pine	96	157	loblolly pine, southern red oak, sweetgum
	longleaf pine	98	143	
	shortleaf pine	90	143	
Niwana	loblolly pine	96	143	loblolly pine, slash pine, sweetgum
	longleaf pine	---	0	
	sweetgum	---	0	
KiB:				
Kirbyville	loblolly pine	96	157	loblolly pine, southern red oak, sweetgum
	longleaf pine	98	143	
	shortleaf pine	90	143	
KnB:				
Kountze	loblolly pine	95	---	---
KoA:				
Koury	loblolly pine	108	172	loblolly pine, slash pine, sweetgum, water oak
	sweetgum	100	143	
	water oak	90	86	
Lb:				
Laneville	loblolly pine	100	157	loblolly pine
	sweetgum	100	143	
	water oak	100	100	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
LcB:				
Laska	loblolly pine	90	129	loblolly pine, slash pine
	slash pine	90	157	
	shortleaf pine	80	129	
LvA:				
Lelavale	red maple	---	0	---
	slash pine	---	0	
	water oak	---	0	
MpA:				
Mollville	loblolly pine	82	114	loblolly pine, sweetgum, water oak
	sweetgum	80	86	
	water oak	80	72	
	willow oak	80	72	
Besner	loblolly pine	93	143	loblolly pine, slash pine, sweetgum
	shortleaf pine	85	143	
NhB:				
Newco	loblolly pine	88	129	loblolly pine, slash pine, sweetgum
	shortleaf pine	80	129	
NhD:				
Newco	loblolly pine	88	129	loblolly pine, slash pine, sweetgum
	shortleaf pine	80	129	
NoA:				
Nona	red maple	---	0	water oak
	water oak	60	43	
Dallardsville	loblolly pine	90	---	loblolly pine, sweetgum, water oak
	shortleaf pine	70	114	
	southern red oak	---	0	
	sweetgum	90	100	
	water oak	90	86	
OiA:				
Olive	loblolly pine	89	---	loblolly pine
Dallardsville	loblolly pine	89	---	loblolly pine, sweetgum, water oak
	shortleaf pine	70	114	
	southern red oak	---	0	
	sweetgum	90	100	
	water oak	90	86	
OtB:				
Otanya	loblolly pine	93	129	black walnut, loblolly pine, southern red oak, sweetgum
	longleaf pine	82	100	
	shortleaf pine	80	129	
	slash pine	94	172	
	sweetgum	---	0	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
OtC:				
Otanya	loblolly pine	93	129	black walnut, loblolly pine, southern red oak, sweetgum
	longleaf pine	82	100	
	shortleaf pine	80	129	
	slash pine	94	172	
	sweetgum	---	0	
Oz:				
Ozias	sweetgum	102	143	green ash, green ash, green ash
	water oak	100	100	
	willow oak	100	100	
Pophers	water oak	107	100	green ash, sweetgum, water oak
PkA:				
Plank	loblolly pine	78	72	loblolly pine, slash pine
	longleaf pine	42	29	
	shortleaf pine	42	57	
PmB:				
Pinetucky	loblolly pine	95	143	loblolly pine, longleaf pine, slash pine
	longleaf pine	82	100	
RaB:				
Rayburn	loblolly pine	87	129	loblolly pine, slash pine
	longleaf pine	74	86	
RaD:				
Rayburn	loblolly pine	87	129	loblolly pine, slash pine
	longleaf pine	74	86	
ReB:				
Redco	loblolly pine	80	114	loblolly pine, slash pine, sweetgum
	shortleaf pine	70	114	
	water oak	70	57	
ReD:				
Redco	loblolly pine	80	114	loblolly pine, slash pine, sweetgum
	shortleaf pine	70	114	
	water oak	70	57	
RrB:				
Rogan	loblolly pine	85	114	loblolly pine, slash pine
	longleaf pine	70	86	
RrF:				
Rogan	loblolly pine	85	114	loblolly pine, slash pine
	longleaf pine	70	86	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SeD:				
Sawlit	loblolly pine	90	129	loblolly pine
Sawtown	loblolly pine	91	129	loblolly pine
	slash pine	100	186	
	shortleaf pine	86	143	
	sweetgum	95	114	
	southern red oak	95	72	
ShB:				
Shankler	loblolly pine	92	143	loblolly pine
	shortleaf pine	---	0	
ShD:				
Shankler	loblolly pine	92	143	loblolly pine
SiC:				
Silsbee	loblolly pine	95	---	loblolly pine
SiD:				
Silsbee	loblolly pine	95	---	loblolly pine
SnA:				
Sorter	loblolly pine	94	129	green ash, loblolly pine, slash pine, sweetgum, willow oak
	longleaf pine	80	100	
	shortleaf pine	80	129	
	southern red oak	80	57	
	sweetgum	90	100	
	water oak	90	86	
Dallardsville	loblolly pine	89	---	loblolly pine, sweetgum, water oak
	shortleaf pine	70	114	
	southern red oak	---	0	
	sweetgum	90	100	
	water oak	90	86	
SsA:				
Spurger	loblolly pine	101	157	loblolly pine, southern red oak, sweetgum
	shortleaf pine	90	143	
	southern red oak	90	72	
	sweetgum	100	143	
Caneyhead	loblolly pine	82	114	loblolly pine, sweetgum, water oak
	sweetgum	80	86	
	water oak	80	72	
	willow oak	80	72	
StM:				
Stringtown	loblolly pine	81	114	loblolly pine, slash pine
	longleaf pine	73	86	
Bonwier	loblolly pine	72	100	loblolly pine, shortleaf pine
	longleaf pine	65	72	
	shortleaf pine	61	86	

Table 7.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
TuB:				
Turkey	loblolly pine	84	---	loblolly pine
TyA:				
Tyden	loblolly pine	78	---	loblolly pine
	longleaf pine	---	0	
	shortleaf pine	---	0	
Babco	loblolly pine	70	100	loblolly pine, slash pine
UrB:				
Urland	loblolly pine	86	129	loblolly pine, slash pine
	shortleaf pine	79	129	
VoA:				
Votaw	loblolly pine	93	143	loblolly pine, shortleaf pine
	shortleaf pine	88	143	
W:				
Water	---	---	---	---
WbA:				
Waller	loblolly pine	90	129	green ash, loblolly pine, sweetgum, water oak
	longleaf pine	80	100	
	shortleaf pine	80	129	
	sweetgum	90	100	
	water oak	90	86	
Dallardsville	loblolly pine	89	---	loblolly pine, sweetgum, water oak
	shortleaf pine	70	114	
	southern red oak	---	0	
	sweetgum	90	100	
	water oak	90	86	
WcB:				
Wiergate	loblolly pine	89	129	loblolly pine, shortleaf pine, slash pine
WnB:				
Woodville	loblolly pine	90	129	cherrybark oak, loblolly pine, sweetgum
	shortleaf pine	78	129	
WnD:				
Woodville	loblolly pine	90	129	cherrybark oak, loblolly pine, sweetgum
	shortleaf pine	78	129	
WnS:				
Woodville	loblolly pine	90	57	sweetgum, water oak, willow oak
	shortleaf pine	78	57	
Sawlit	loblolly pine	90	129	loblolly pine

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
BcA:							
Belrose	55	Slight		Well suited		Moderate	
		Landslides	0.10	Landslides	0.10	Low strength	0.50
Caneyhead	30	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
BiB:							
Belrose	85	Slight		Well suited		Moderate	
		Landslides	0.10	Landslides	0.10	Low strength	0.50
BoB:							
Boykin	85	Slight		Well suited		Moderate	
						Low strength	0.50
BrC:							
Browndell	55	Moderate		Well suited		Moderate	
		Low strength	0.50			Low strength	0.50
Kitterll	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
BrD:							
Browndell	55	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Kitterll	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
BrG:							
Browndell	45	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
Kitterll	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
BuB:							
Burkeville	95	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Stickiness; high plasticity index	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
BuD:							
Burkeville----------	95	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Stickiness; high plasticity index	0.50		
				Low strength	0.50		
CgA:							
Chambliss-----------	88	Slight		Well suited		Moderate	
						Low strength	0.50
CiA:							
Choates-------------	90	Slight		Well suited		Moderate	
						Low strength	0.50
CkB:							
Colita--------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
CkC:							
Colita--------------	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Wetness	0.50	Low strength	1.00
				Low strength	0.50		
Laska---------------	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
CmB:							
Colmesneil----------	90	Slight		Well suited		Moderate	
						Low strength	0.50
CoB:							
Corrigan------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
CoE:							
Corrigan------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
				Wetness	0.50		
CyA:							
Cypress-------------	95	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00	Wetness	0.50
		Stickiness/slope	0.50	Wetness	1.00		
		Low strength	0.50	Stickiness; high plasticity index	0.50		
				Low strength	0.50		
DoB:							
Doucette------------	90	Slight		Well suited		Moderate	
						Low strength	0.50

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EtA:							
Estes	55	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
Angelina	35	Severe		Poorly suited		Moderate	
		Flooding	1.00	Ponding	1.00	Low strength	0.50
		Low strength	0.50	Flooding	1.00		
				Wetness	1.00		
EvA:							
Evadale	85	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Slight		Well suited		Moderate	
						Low strength	0.50
HhD:							
Hillister	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
IbA:							
Iulus	51	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
				Low strength	0.50		
Bleakwood	44	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
JhA:							
Jayhawker	95	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Wetness	0.50		
				Landslides	0.10		
KeB:							
Kenefick	85	Slight		Moderately suited		Severe	
		Landslides	0.10	Low strength	0.50	Low strength	1.00
				Landslides	0.10		
KfA:							
Kenefick	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Caneyhead	30	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KgA:							
Kirbyville----------	53	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
Niwana--------------	34	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
KiB:							
Kirbyville----------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
KnB:							
Kountze-------------	85	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
KoA:							
Koury---------------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Lb:							
Laneville-----------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
LcB:							
Laska---------------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
LvA:							
Lelavale------------	95	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
		Stickiness/slope	0.50	Wetness	1.00		
				Low strength	0.50		
MpA:							
Mollville-----------	50	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
Besner--------------	35	Slight		Well suited		Moderate	
						Low strength	0.50
NhB:							
Newco---------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
NhD:							
Newco---------------	85	Moderate		Moderately suited		Moderate	
		Low strength	0.50	Slope	0.50	Low strength	0.50

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
NoA:							
Nona	70	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
Dallardsville	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
OiA:							
Olive	65	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
Dallardsville	25	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
OtB:							
Otanya	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
OtC:							
Otanya	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Oz:							
Ozias	55	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
		Stickiness/slope	0.50	Low strength	0.50		
				Stickiness; high plasticity index	0.50		
Pophers	35	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
PkA:							
Plank	95	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
PmB:							
Pinetucky	80	Slight		Well suited		Moderate	
						Low strength	0.50
RaB:							
Rayburn	80	Moderate		Well suited		Moderate	
		Low strength	0.50			Low strength	0.50

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
RaD:							
Rayburn	90	Moderate		Moderately suited		Moderate	
		Low strength	0.50	Slope	0.50	Low strength	0.50
ReB:							
Redco	90	Slight		Moderately suited		Severe	
				Stickiness; high plasticity index	0.50	Low strength	1.00
				Low strength	0.50		
ReD:							
Redco	90	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Stickiness; high plasticity index	0.50		
				Low strength	0.50		
RrB:							
Rogan	90	Slight		Well suited		Moderate	
						Low strength	0.50
RrF:							
Rogan	90	Moderate		Well suited		Moderate	
		Low strength	0.50			Low strength	0.50
SeD:							
Sawlit	45	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Stickiness/slope	0.50				
Sawtown	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Stickiness/slope	0.50				
ShB:							
Shankler	80	Slight		Well suited		Moderate	
						Low strength	0.50
ShD:							
Shankler	85	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
SiC:							
Silsbee	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
SiD:							
Silsbee	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Slope	0.50		
				Landslides	0.10		

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
SnA:							
Sorter	61	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
Dallardsville	33	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
SsA:							
Spurger	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Caneyhead	30	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
StM:							
Stringtown	65	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Bonwier	25	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
TuB:							
Turkey	95	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
TyA:							
Tyden	60	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
Babco	25	Slight		Well suited		Moderate	
		Landslides	0.10	Landslides	0.10	Low strength	0.50
UrB:							
Urland	80	Slight		Well suited		Moderate	
						Low strength	0.50
VoA:							
Votaw	95	Moderate		Poorly suited		Moderate	
		Sandiness	0.50	Wetness	1.00	Low strength	0.50
				Sandiness	0.50		
W:							
Water	100	Not rated		Not rated		Not rated	

Table 8.--Haul Roads, Log Landings, and Soil Rutting Hazard--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WbA:							
Waller	59	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
		Landslides	0.10	Low strength	0.50		
				Landslides	0.10		
Dallardsville	36	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Landslides	0.10	Landslides	0.10		
WcB:							
Wiergate	90	Moderate		Moderately suited		Severe	
		Stickiness/slope	0.50	Stickiness; high plasticity index	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
WnB:							
Woodville	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
WnD:							
Woodville	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
WnS:							
Woodville	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
Sawlit	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Stickiness/slope	0.50				

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Slight		Slight		Moderately suited	
						Low strength	0.50
BcA:							
Belrose	55	Slight		Slight		Well suited	
						Landslides	0.10
Caneyhead	30	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
BiB:							
Belrose	85	Slight		Slight		Well suited	
						Landslides	0.10
BoB:							
Boykin	85	Slight		Slight		Well suited	
BrC:							
Browndell	55	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
Kitterll	35	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
BrD:							
Browndell	55	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
Kitterll	35	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
BrG:							
Browndell	45	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Kitterll	40	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
BuB:							
Burkeville	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Stickiness; high plasticity index	0.50
						Low strength	0.50

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
BuD:							
Burkeville	95	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Stickiness; high plasticity index	0.50
						Low strength	0.50
CgA:							
Chambliss	88	Slight		Slight		Well suited	
CiA:							
Choates	90	Slight		Slight		Well suited	
CkB:							
Colita	85	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
CkC:							
Colita	45	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
Laska	35	Slight		Slight		Moderately suited	
						Low strength	0.50
CmB:							
Colmesneil	90	Slight		Slight		Well suited	
CoB:							
Corrigan	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
CoE:							
Corrigan	85	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Wetness	0.50
CyA:							
Cypress	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	1.00
						Stickiness; high plasticity index	0.50
						Low strength	0.50
DoB:							
Doucette	90	Slight		Slight		Well suited	

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
EtA:							
Estes	55	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
Angelina	35	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	1.00
EvA:							
Evadale	85	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Slight		Slight		Well suited	
HhD:							
Hillister	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
IbA:							
Iulus	51	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Bleakwood	44	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
JhA:							
Jayhawker	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Low strength	0.50
						Wetness	0.50
						Landslides	0.10
KeB:							
Kenefick	85	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
KfA:							
Kenefick	55	Slight		Slight		Moderately suited	
						Low strength	0.50
Caneyhead	30	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
KgA:							
Kirbyville	53	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
Niwana	34	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
KiB:							
Kirbyville	85	Slight		Slight		Moderately suited	
						Low strength	0.50
KnB:							
Kountze	85	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
KoA:							
Koury	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Lb:							
Laneville	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
LcB:							
Laska	80	Slight		Slight		Moderately suited	
						Low strength	0.50
LvA:							
Lelavale	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
MpA:							
Mollville	50	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
Besner	35	Slight		Slight		Well suited	
NhB:							
Newco	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
NhD:							
Newco	85	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NoA:							
Nona----------------	70	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
Dallardsville-------	20	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
OiA:							
Olive---------------	65	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
Dallardsville-------	25	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
OtB:							
Otanya--------------	90	Slight		Slight		Moderately suited	
						Low strength	0.50
OtC:							
Otanya--------------	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
Oz:							
Ozias---------------	55	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
						Stickiness; high plasticity index	0.50
Pophers-------------	35	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Wetness	0.50
PkA:							
Plank---------------	95	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
PmB:							
Pinetucky-----------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
RaB:							
Rayburn-------------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
RaD:							
Rayburn	90	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
ReB:							
Redco	90	Slight		Slight		Moderately suited	
						Stickiness; high plasticity index	0.50
						Low strength	0.50
ReD:							
Redco	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Stickiness; high plasticity index	0.50
						Low strength	0.50
RrB:							
Rogan	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
RrF:							
Rogan	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
SeD:							
Sawlit	45	Slight		Slight		Moderately suited	
						Low strength	0.50
Sawtown	35	Slight		Slight		Moderately suited	
						Low strength	0.50
ShB:							
Shankler	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
ShD:							
Shankler	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
SiC:							
Silsbee	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Landslides	0.10
SiD:							
Silsbee	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
						Landslides	0.10

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
SnA:							
Sorter	61	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
Dallardsville	33	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
SsA:							
Spurger	50	Slight		Slight		Moderately suited	
						Low strength	0.50
Caneyhead	30	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
StM:							
Stringtown	65	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
Bonwier	25	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
TuB:							
Turkey	95	Slight		Slight		Moderately suited	
						Sandiness	0.50
TyA:							
Tyden	60	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
Babco	25	Slight		Slight		Well suited	
						Landslides	0.10
UrB:							
Urland	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
VoA:							
Votaw	95	Slight		Slight		Poorly suited	
						Wetness	1.00
						Sandiness	0.50
W:							
Water	100	Not rated		Not rated		Not rated	

Table 9.--Off-Road Erosion, Erosion on Roads and Trails, and Roads (Natural Surface)--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WbA:							
Waller	59	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
						Landslides	0.10
Dallardsville	36	Slight		Slight		Moderately suited	
						Low strength	0.50
						Landslides	0.10
WcB:							
Wiergate	90	Slight		Slight		Moderately suited	
						Stickiness; high plasticity index	0.50
						Low strength	0.50
WnB:							
Woodville	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
WnD:							
Woodville	85	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
WnS:							
Woodville	50	Slight		Slight		Moderately suited	
						Low strength	0.50
Sawlit	35	Slight		Slight		Moderately suited	
						Low strength	0.50

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
BcA:							
Belrose	55	Well suited		Well suited		Well suited	
Caneyhead	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
BiB:							
Belrose	85	Well suited		Well suited		Well suited	
BoB:							
Boykin	85	Well suited		Well suited		Well suited	
BrC:							
Browndell	55	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
				Rock fragments	0.50		
Kitterll	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
BrD:							
Browndell	55	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
				Slope	0.50		
				Rock fragments	0.50		
Kitterll	35	Unsuited		Moderately suited		Moderately suited	
		Restrictive layer	1.00	Slope	0.50	Low strength	0.50
				Restrictive layer	0.50		
BrG:							
Browndell	45	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	0.75	Slope	0.50
				Stickiness; high plasticity index	0.75		
				Rock fragments	0.50		
Kitterll	40	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
BuB:							
Burkeville	95	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
						Stickiness; high plasticity index	0.50
BuD:							
Burkeville	95	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50	Stickiness; high plasticity index	0.50
CgA:							
Chambliss	88	Well suited		Well suited		Well suited	
CiA:							
Choates	90	Well suited		Well suited		Well suited	
CkB:							
Colita	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CkC:							
Colita	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Laska	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CmB:							
Colmesneil	90	Well suited		Well suited		Well suited	
CoB:							
Corrigan	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
CoE:							
Corrigan	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
CyA:							
Cypress	95	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Stickiness; high plasticity index	0.75	Wetness	1.00
		Stickiness; high plasticity index	0.75	Wetness	0.75	Low strength	0.50
						Stickiness; high plasticity index	0.50
DoB:							
Doucette	90	Well suited		Well suited		Well suited	

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
EtA:							
Estes----------------	55	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
Angelina------------	35	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
EvA:							
Evadale-------------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
GPI:							
Pits-----------------	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville---------	85	Well suited		Well suited		Well suited	
HhD:							
Hillister-----------	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
IbA:							
Iulus---------------	51	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Bleakwood-----------	44	Well suited		Well suited		Moderately suited	
						Low strength	0.50
JhA:							
Jayhawker-----------	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KeB:							
Kenefick------------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KfA:							
Kenefick------------	55	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Caneyhead-----------	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KgA:							
Kirbyville----------	53	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Niwana--------------	34	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KiB:							
Kirbyville----------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KnB:							
Kountze	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KoA:							
Koury	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Lb:							
Laneville	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LcB:							
Laska	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LvA:							
Lelavale	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
MpA:							
Mollville	50	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Besner	35	Well suited		Well suited		Well suited	
NhB:							
Newco	85	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
NhD:							
Newco	85	Moderately suited		Moderately suited		Well suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
				Slope	0.50		
NoA:							
Nona	70	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Dallardsville	20	Well suited		Well suited		Moderately suited	
						Low strength	0.50
OiA:							
Olive	65	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Dallardsville	25	Well suited		Well suited		Moderately suited	
						Low strength	0.50
OtB:							
Otanya	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OtC:							
Otanya	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Oz:							
Ozias	55	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
						Stickiness; high plasticity index	0.50
Pophers	35	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
PkA:							
Plank	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
PmB:							
Pinetucky	80	Well suited		Well suited		Well suited	
RaB:							
Rayburn	80	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
RaD:							
Rayburn	90	Poorly suited		Poorly suited		Well suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
				Slope	0.50		
ReB:							
Redco	90	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
						Stickiness; high plasticity index	0.50
ReD:							
Redco	90	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50	Stickiness; high plasticity index	0.50
RrB:							
Rogan	90	Well suited		Well suited		Well suited	
RrF:							
Rogan	90	Well suited		Well suited		Well suited	

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
SeD:							
Sawlit	45	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Sawtown	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
ShB:							
Shankler	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
ShD:							
Shankler	85	Well suited		Moderately suited		Well suited	
				Slope	0.50		
SiC:							
Silsbee	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
SiD:							
Silsbee	95	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
SnA:							
Sorter	61	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Dallardsville	33	Well suited		Well suited		Moderately suited	
						Low strength	0.50
SsA:							
Spurger	50	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
Caneyhead	30	Well suited		Well suited		Moderately suited	
						Low strength	0.50
StM:							
Stringtown	65	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Bonwier	25	Well suited		Moderately suited		Well suited	
				Slope	0.50		
TuB:							
Turkey	95	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
TyA:							
Tyden	60	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Babco	25	Well suited		Well suited		Well suited	

Table 10.--Suitability for Hand Planting, Mechanical Planting, and Harvesting Equipment--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
UrB:							
Urland	80	Moderately suited		Moderately suited		Well suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
VoA:							
Votaw	95	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Dallardsville	36	Well suited		Well suited		Moderately suited	
						Low strength	0.50
WcB:							
Wiergate	90	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
						Stickiness; high plasticity index	0.50
WnB:							
Woodville	80	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
WnD:							
Woodville	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
WnS:							
Woodville	50	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
Sawlit	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 11.--Suitability for Mechanical Site Preparation (Surface) and (Deep)--Continued

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
AaB:					
Alazan	95	Well suited		Well suited	
BcA:					
Belrose	55	Well suited		Well suited	
Caneyhead	30	Well suited		Well suited	
BiB:					
Belrose	85	Well suited		Well suited	
BoB:					
Boykin	85	Well suited		Well suited	
BrC:					
Browndell	55	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
Kitterll	35	Well suited		Well suited	
BrD:					
Browndell	55	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
Kitterll	35	Poorly suited		Well suited	
		Restrictive layer	0.50		
BrG:					
Browndell	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50		
Kitterll	40	Well suited		Well suited	
BuB:					
Burkeville	95	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
BuD:					
Burkeville	95	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
CgA:					
Chambliss	88	Well suited		Well suited	

Table 11.--Suitability for Mechanical Site Preparation (Surface) and (Deep)--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
CiA:					
Choates	90	Well suited		Well suited	
CkB:					
Colita	85	Well suited		Well suited	
CkC:					
Colita	45	Well suited		Well suited	
Laska	35	Well suited		Well suited	
CmB:					
Colmesneil	90	Well suited		Well suited	
CoB:					
Corrigan	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
CoE:					
Corrigan	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
CyA:					
Cypress	95	Unsuited		Unsuited	
		Wetness	0.75	Wetness	1.00
		Stickiness; high plasticity index	0.50		
DoB:					
Doucette	90	Well suited		Well suited	
EtA:					
Estes	55	Well suited		Well suited	
Angelina	35	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
EvA:					
Evadale	85	Well suited		Well suited	
GPI:					
Pits	100	Not rated		Not rated	
HaA:					
Hainesville	85	Well suited		Well suited	
HhD:					
Hillister	90	Well suited		Well suited	
IbA:					
Iulus	51	Well suited		Well suited	
Bleakwood	44	Well suited		Well suited	

Table 11.--Suitability for Mechanical Site Preparation (Surface) and (Deep)--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
JhA:					
Jayhawker	95	Well suited		Well suited	
KeB:					
Kenefick	85	Well suited		Well suited	
KfA:					
Kenefick	55	Well suited		Well suited	
Caneyhead	30	Well suited		Well suited	
KgA:					
Kirbyville	53	Well suited		Well suited	
Niwana	34	Well suited		Well suited	
KiB:					
Kirbyville	85	Well suited		Well suited	
KnB:					
Kountze	85	Well suited		Well suited	
KoA:					
Koury	85	Well suited		Well suited	
Lb:					
Laneville	85	Well suited		Well suited	
LcB:					
Laska	80	Well suited		Well suited	
LvA:					
Lelavale	95	Well suited		Well suited	
MpA:					
Mollville	50	Well suited		Well suited	
Besner	35	Well suited		Well suited	
NhB:					
Newco	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
NhD:					
Newco	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
NoA:					
Nona	70	Well suited		Well suited	
Dallardsville	20	Well suited		Well suited	

Table 11.--Suitability for Mechanical Site Preparation (Surface) and (Deep)--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
OiA:					
Olive	65	Well suited		Well suited	
Dallardsville	25	Well suited		Well suited	
OtB:					
Otanya	90	Well suited		Well suited	
OtC:					
Otanya	95	Well suited		Well suited	
Oz:					
Ozias	55	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
Pophers	35	Well suited		Well suited	
PkA:					
Plank	95	Well suited		Well suited	
PmB:					
Pinetucky	80	Well suited		Well suited	
RaB:					
Rayburn	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
RaD:					
Rayburn	90	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
ReB:					
Redco	90	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
ReD:					
Redco	90	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
RrB:					
Rogan	90	Well suited		Well suited	
RrF:					
Rogan	90	Well suited		Well suited	
SeD:					
Sawlit	45	Well suited		Well suited	
Sawtown	35	Well suited		Well suited	

Table 11.--Suitability for Mechanical Site Preparation (Surface) and (Deep)--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
ShB:					
Shankler	80	Well suited		Well suited	
ShD:					
Shankler	85	Well suited		Well suited	
SiC:					
Silsbee	90	Well suited		Well suited	
SiD:					
Silsbee	95	Well suited		Well suited	
SnA:					
Sorter	61	Well suited		Well suited	
Dallardsville	33	Well suited		Well suited	
SsA:					
Spurger	50	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
Caneyhead	30	Well suited		Well suited	
StM:					
Stringtown	65	Well suited		Well suited	
Bonwier	25	Well suited		Well suited	
TuB:					
Turkey	95	Well suited		Well suited	
TyA:					
Tyden	60	Well suited		Well suited	
Babco	25	Well suited		Well suited	
UrB:					
Urland	80	Well suited		Well suited	
VoA:					
Votaw	95	Well suited		Well suited	
W:					
Water	100	Not rated		Not rated	
WbA:					
Waller	59	Well suited		Well suited	
Dallardsville	36	Well suited		Well suited	

Table 11.--Suitability for Mechanical Site Preparation (Surface) and (Deep)--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
WcB:					
Wiergate------------	90	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
WnB:					
Woodville-----------	80	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
WnD:					
Woodville-----------	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
WnS:					
Woodville-----------	50	Well suited		Well suited	
Sawlit--------------	35	Well suited		Well suited	

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
AaB:					
Alazan	95	Moderate		Low	
		Texture/rock fragments	0.50		
BcA:					
Belrose	55	High		Low	
		Texture/rock fragments	1.00		
Caneyhead	30	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
BiB:					
Belrose	85	High		Low	
		Texture/rock fragments	1.00		
BoB:					
Boykin	85	High		Low	
		Texture/rock fragments	1.00		
BrC:					
Browndell	55	Not rated		Low	
Kitterll	35	High		Low	
		Texture/rock fragments	1.00		
BrD:					
Browndell	55	Moderate		Low	
		Texture/rock fragments	0.50		
Kitterll	35	Moderate		Low	
		Texture/rock fragments	0.50		
BrG:					
Browndell	45	High		Moderate	
		Texture/surface depth/rock fragments	1.00	Available water	0.50
Kitterll	40	Moderate		Low	
		Texture/rock fragments	0.50		

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BuB:					
Burkeville	95	High		Moderate	
		Texture/rock fragments	1.00	Soil reaction	0.50
BuD:					
Burkeville	95	High		Moderate	
		Texture/rock fragments	1.00	Soil reaction	0.50
CgA:					
Chambliss	88	High		Low	
		Texture/rock fragments	1.00		
CiA:					
Choates	90	High		Low	
		Texture/rock fragments	1.00		
CkB:					
Colita	85	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
CkC:					
Colita	45	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
Laska	35	Moderate		Low	
		Texture/rock fragments	0.50		
CmB:					
Colmesneil	90	High		Low	
		Texture/rock fragments	1.00		
CoB:					
Corrigan	85	Not rated		Low	
		Not rated			
CoE:					
Corrigan	85	Not rated		Low	
CyA:					
Cypress	95	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
				Soil reaction	0.50

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
DoB:					
Doucette	90	High		Low	
		Texture/rock fragments	1.00		
EtA:					
Estes	55	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
Angelina	35	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Soil reaction	0.50
EvA:					
Evadale	85	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Soil reaction	0.50
GPI:					
Pits	100	Not rated		Not rated	
HaA:					
Hainesville	85	High		Low	
		Texture/rock fragments	1.00		
HhD:					
Hillister	90	High		Low	
		Texture/rock fragments	1.00		
IbA:					
Iulus	51	High		Low	
		Texture/surface depth/rock fragments	1.00		
Bleakwood	44	High		High	
		Texture/surface depth/rock fragments	1.00	Wetness	1.00
JhA:					
Jayhawker	95	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
KeB:					
Kenefick	85	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
KfA:					
Kenefick	55	High		Low	
		Texture/surface depth/rock fragments	1.00		
Caneyhead	30	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
KgA:					
Kirbyville	53	Low		Low	
		Texture/rock fragments	0.10		
Niwana	34	Low		Low	
		Texture/rock fragments	0.10		
KiB:					
Kirbyville	85	Low		Low	
		Texture/rock fragments	0.10		
KnB:					
Kountze	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
KoA:					
Koury	85	Moderate		Low	
		Texture/rock fragments	0.50		
Lb:					
Laneville	85	Not rated		Low	
LcB:					
Laska	80	Moderate		Low	
		Texture/rock fragments	0.50		
LvA:					
Lelavale	95	High		High	
		Texture/surface depth/rock fragments	1.00	Wetness	1.00
				Soil reaction	0.50

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
MpA:					
Mollville	50	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
Besner	35	Moderate		Low	
		Texture/rock fragments	0.50		
NhB:					
Newco	85	Moderate		Low	
		Texture/rock fragments	0.50		
NhD:					
Newco	85	High		Low	
		Texture/surface depth/rock fragments	1.00		
NoA:					
Nona	70	High		High	
		Texture/surface depth/rock fragments	1.00	Wetness	1.00
				Soil reaction	0.50
Dallardsville	20	Moderate		Moderate	
		Texture/rock fragments	0.50	Soil reaction	0.50
OiA:					
Olive	65	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
				Soil reaction	1.00
Dallardsville	25	High		Moderate	
		Texture/surface depth/rock fragments	1.00	Soil reaction	0.50
OtB:					
Otanya	90	Low		Low	
		Texture/rock fragments	0.10		
OtC:					
Otanya	95	Low		Low	
		Texture/rock fragments	0.10		

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
Oz:					
Ozias	55	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
				Salinity	0.50
				Soil reaction	0.50
Pophers	35	High		High	
		Texture/surface depth/rock fragments	1.00	Wetness	1.00
PkA:					
Plank	95	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Soil reaction	0.50
PmB:					
Pinetucky	80	Moderate		Low	
		Texture/rock fragments	0.50		
RaB:					
Rayburn	80	Not rated		High	
		Not rated		Wetness	1.00
RaD:					
Rayburn	90	Moderate		Low	
		Texture/rock fragments	0.50		
ReB:					
Redco	90	High		Low	
		Texture/rock fragments	1.00		
ReD:					
Redco	90	High		Low	
		Texture/rock fragments	1.00		
RrB:					
Rogan	90	Moderate		Low	
		Texture/rock fragments	0.50		
RrF:					
Rogan	90	High		Low	
		Texture/surface depth/rock fragments	1.00		

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
SeD:					
Sawlit	45	Moderate		Low	
		Texture/rock fragments	0.50		
Sawtown	35	Moderate		Low	
		Texture/rock fragments	0.50		
ShB:					
Shankler	80	High		Low	
		Texture/rock fragments	1.00		
ShD:					
Shankler	85	High		Low	
		Texture/rock fragments	1.00		
SiC:					
Silsbee	90	Moderate		Low	
		Texture/rock fragments	0.50		
SiD:					
Silsbee	95	Moderate		Low	
		Texture/rock fragments	0.50		
SnA:					
Sorter	61	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
				Soil reaction	0.50
Dallardsville	33	Moderate		Moderate	
		Texture/rock fragments	0.50	Soil reaction	0.50
SsA:					
Spurger	50	Moderate		Low	
		Texture/rock fragments	0.50		
Caneyhead	30	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
StM:					
Stringtown	65	Moderate		Low	
		Texture/rock fragments	0.50		
Bonwier	25	Moderate		Low	
		Texture/rock fragments	0.50		
TuB:					
Turkey	95	High		Moderate	
		Texture/rock fragments	1.00	Available water	0.50
TyA:					
Tyden	60	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
				Soil reaction	0.50
Babco	25	Moderate		Moderate	
		Texture/rock fragments	0.50	Soil reaction	0.50
UrB:					
Urland	80	Moderate		Low	
		Texture/rock fragments	0.50		
VoA:					
Votaw	95	High		High	
		Texture/surface depth/rock fragments	1.00	Wetness	1.00
W:					
Water	100	Not rated		Not rated	
WbA:					
Waller	59	Moderate		High	
		Texture/surface depth/rock fragments	0.50	Wetness	1.00
Dallardsville	36	Moderate		Moderate	
		Texture/rock fragments	0.50	Soil reaction	0.50
WcB:					
Wiergate	90	Moderate		Low	
		Texture/rock fragments	0.50		

Table 12.--Potential for Damage to Soil by Fire, and Seedling Mortality--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
WnB:					
Woodville-----------	80	Moderate		Low	
		Texture/rock fragments	0.50		
WnD:					
Woodville-----------	85	Moderate		Low	
		Texture/rock fragments	0.50		
WnS:					
Woodville-----------	50	Moderate		Low	
		Texture/rock fragments	0.50		
Sawlit--------------	35	Moderate		Low	
		Texture/rock fragments	0.50		

Table 13.--Camp Areas, Picnic Areas, and Playgrounds

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
BcA:							
Belrose	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.80	Too sandy	0.80	Too sandy	0.80
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
BiB:							
Belrose	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.80	Too sandy	0.80	Too sandy	0.80
BoB:							
Boykin	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
						Slope	0.12
BrC:							
Browndell	55	Not rated		Not rated		Not rated	
Kitterll	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.50	Too sandy	0.50	Too sandy	0.50
						Slope	0.12
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
Kitterll	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
BrG:							
Browndell	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Kitterll	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
BuB:							
Burkeville	95	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.50
BuD:							
Burkeville	95	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
CgA:							
Chambliss	88	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.82	Too sandy	0.82	Too sandy	0.82
						Slope	0.50
CiA:							
Choates	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.87	Too sandy	0.87	Too sandy	0.87
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Slope	0.12
CkB:							
Colita	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
CkC:							
Colita	45	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
Laska	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
CmB:							
Colmesneil	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.96	Too sandy	0.96	Too sandy	0.96
						Slope	0.50

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
CoB:							
Corrigan------------	85	Not rated		Not rated		Not rated	
CoE:							
Corrigan------------	85	Not rated		Not rated		Not rated	
CyA:							
Cypress-------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	0.40	Slow water movement	1.00
DoB:							
Doucette------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Too sandy	0.84
						Slope	0.12
EtA:							
Estes---------------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Flooding	1.00
		Slow water movement	1.00	Too clayey	1.00	Slow water movement	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
Angelina------------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	0.94	Ponding	1.00
		Slow water movement	0.94	Flooding	0.40	Slow water movement	0.94
EvA:							
Evadale-------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
GPI:							
Pits----------------	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville---------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.83	Too sandy	0.83	Too sandy	0.83

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
HhD:							
Hillister	90	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.85	Too sandy	0.85	Slope	1.00
		Slope	0.16	Slope	0.16	Too sandy	0.85
IbA:							
Iulus	51	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
						Gravel content	0.08
Bleakwood	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
KeB:							
Kenefick	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
		Too sandy	0.04	Too sandy	0.04	Too sandy	0.04
KfA:							
Kenefick	55	Not limited		Not limited		Not limited	
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
KgA:							
Kirbyville	53	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Niwana	34	Not limited		Not limited		Not limited	
KiB:							
Kirbyville	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KnB:							
Kountze	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
KoA:							
Koury	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
Lb:							
Laneville	85	Not rated		Not rated		Not rated	
LcB:							
Laska	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
LvA:							
Lelavale	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
MpA:							
Mollville	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
Besner	35	Not limited		Not limited		Not limited	
NhB:							
Newco	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
						Slope	0.12
NhD:							
Newco	85	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.94	Slow water movement	0.94	Slope	1.00
		Slope	0.16	Slope	0.16	Slow water movement	0.94

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
NoA:							
Nona	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
Dallardsville	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
OiA:							
Olive	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Too acid	1.00	Too acid	1.00	Too acid	1.00
Dallardsville	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.29	Too sandy	0.29	Too sandy	0.29
OtB:							
Otanya	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.15	Slow water movement	0.15	Slow water movement	0.15
		Too sandy	0.02	Too sandy	0.02	Too sandy	0.02
OtC:							
Otanya	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.15	Slow water movement	0.15	Slope	0.50
		Too sandy	0.04	Too sandy	0.04	Slow water movement	0.15
						Too sandy	0.04
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Flooding	1.00
		Slow water movement	1.00	Too clayey	1.00	Slow water movement	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Salinity	0.01	Salinity	0.01	Salinity	0.01
Pophers	35	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
		Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
PmB:							
Pinetucky	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
						Slope	0.12
RaB:							
Rayburn	80	Not rated		Not rated		Not rated	
RaD:							
Rayburn	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
ReB:							
Redco	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
RrB:							
Rogan	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.26	Slow water movement	0.26	Gravel content	1.00
		Gravel content	0.18	Gravel content	0.18	Slow water movement	0.26
						Slope	0.12
RrF:							
Rogan	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.26	Slow water movement	0.26	Gravel content	1.00
		Gravel content	0.18	Gravel content	0.18	Slow water movement	0.26
						Slope	0.12
SeD:							
Sawlit	45	Not limited		Not limited		Not limited	
Sawtown	35	Not limited		Not limited		Not limited	

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
ShB:							
Shankler	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.87	Too sandy	0.87	Slope	0.88
						Too sandy	0.87
ShD:							
Shankler	85	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.87	Too sandy	0.87	Slope	1.00
		Slope	0.63	Slope	0.63	Too sandy	0.87
SiC:							
Silsbee	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.28	Too sandy	0.28	Too sandy	0.28
						Slope	0.12
SiD:							
Silsbee	95	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.28	Too sandy	0.28	Slope	1.00
						Too sandy	0.28
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Dallardsville	33	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
SsA:							
Spurger	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
StM:							
Stringtown	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
Bonwier	25	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.26	Slow water movement	0.26	Slope	1.00
		Slope	0.16	Slope	0.16	Slow water movement	0.26
						Gravel content	0.05

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
TuB:							
Turkey	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.99	Too sandy	0.99	Too sandy	0.99
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
Babco	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Too sandy	0.18	Too sandy	0.18	Too sandy	0.18
UrB:							
Urland	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
						Slope	0.12
VoA:							
Votaw	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00	Depth to saturated zone	0.02	Depth to saturated zone	0.05
		Depth to saturated zone	0.05				
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.98	Slow water movement	0.98	Slow water movement	0.98
Dallardsville	36	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
WcB:							
Wiergate	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00

Table 13.--Camp Areas, Picnic Areas, and Playgrounds--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
WnB:							
Woodville	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
						Slope	0.12
WnD:							
Woodville	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
WnS:							
Woodville	50	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
Sawlit	35	Not limited		Not limited		Not limited	

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
BcA:							
Belrose	55	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.80	Too sandy	0.80		
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
BiB:							
Belrose	85	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.80	Too sandy	0.80		
BoB:							
Boykin	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Droughty	0.14
BrC:							
Browndell	55	Not rated		Not rated		Not rated	
Kitterll	35	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.50	Too sandy	0.50	Depth to bedrock	1.00
						Droughty	0.99
BrD:							
Browndell	55	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	0.92
						Slope	0.16
						Large stones content	0.03
Kitterll	35	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.16

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrG:							
Browndell-----------	45	Very limited		Not limited		Very limited	
		Slope	1.00			Slope	1.00
						Depth to bedrock	1.00
						Droughty	0.98
						Large stones content	0.03
Kitterll------------	40	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.16
BuB:							
Burkeville----------	95	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
BuD:							
Burkeville----------	95	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
						Slope	0.16
CgA:							
Chambliss-----------	88	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.82	Too sandy	0.82	Droughty	0.16
CiA:							
Choates-------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.87	Too sandy	0.87	Depth to saturated zone	0.19
CkB:							
Colita--------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
CkC:							
Colita--------------	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
Laska---------------	35	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
CmB:							
Colmesneil----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.96	Too sandy	0.96	Droughty	0.19
CoB:							
Corrigan------------	85	Not rated		Not rated		Not rated	
CoE:							
Corrigan------------	85	Not rated		Not rated		Not rated	

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf course fairways: Rating class and limiting features	Value
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
DoB:							
Doucette	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.84	Too sandy	0.84	Droughty	0.39
EtA:							
Estes	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Too clayey	1.00	Too clayey	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
Angelina	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
EvA:							
Evadale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Sodium content	1.00
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.83	Too sandy	0.83		
HhD:							
Hillister	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.85	Too sandy	0.85	Slope	0.16
						Droughty	0.03
IbA:							
Iulus	51	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Bleakwood	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf course fairways: Rating class and limiting features	Value
JhA:							
Jayhawker-----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
KeB:							
Kenefick------------	85	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.04	Too sandy	0.04		
KfA:							
Kenefick------------	55	Not limited		Not limited		Not limited	
Caneyhead-----------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
KgA:							
Kirbyville----------	53	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
Niwana--------------	34	Not limited		Not limited		Not limited	
KiB:							
Kirbyville----------	85	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
KnB:							
Kountze-------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
KoA:							
Koury---------------	85	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Lb:							
Laneville-----------	85	Not rated		Not rated		Not rated	
LcB:							
Laska---------------	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
LvA:							
Lelavale------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf course fairways: Rating class and limiting features	Value
MpA:							
Mollville-----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Besner--------------	35	Not limited		Not limited		Not limited	
NhB:							
Newco---------------	85	Not limited		Not limited		Not limited	
NhD:							
Newco---------------	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.16
NoA:							
Nona----------------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dallardsville-------	20	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.01	Too sandy	0.01		
OiA:							
Olive---------------	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
						Too acid	1.00
Dallardsville-------	25	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.29	Too sandy	0.29		
OtB:							
Otanya--------------	90	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.02	Too sandy	0.02		
OtC:							
Otanya--------------	95	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.04	Too sandy	0.04		

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf course fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Too clayey	1.00	Too clayey	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
						Salinity	0.01
Pophers	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PmB:							
Pinetucky	80	Not limited		Not limited		Not limited	
RaB:							
Rayburn	80	Not rated		Not rated		Not rated	
RaD:							
Rayburn	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.16
ReB:							
Redco	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
						Slope	0.16
RrB:							
Rogan	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.18
RrF:							
Rogan	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.18
SeD:							
Sawlit	45	Not limited		Not limited		Not limited	
Sawtown	35	Not limited		Not limited		Not limited	
ShB:							
Shankler	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.87	Too sandy	0.87	Droughty	0.09

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf course fairways: Rating class and limiting features	Value
ShD:							
Shankler	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.87	Too sandy	0.87	Slope	0.63
						Droughty	0.09
SiC:							
Silsbee	90	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.28	Too sandy	0.28		
SiD:							
Silsbee	95	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.28	Too sandy	0.28		
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Dallardsville	33	Not limited		Not limited		Not limited	
SsA:							
Spurger	50	Not limited		Not limited		Not limited	
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
StM:							
Stringtown	65	Not limited		Not limited		Somewhat limited	
						Slope	0.16
Bonwier	25	Not limited		Not limited		Somewhat limited	
						Slope	0.16
TuB:							
Turkey	95	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.99	Too sandy	0.99	Droughty	1.00
						Too sandy	0.50
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Babco	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.18	Too sandy	0.18	Depth to saturated zone	0.19

Table 14.--Paths and Trails, Off-Road Motorcycle Trails, and Golf Course Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf course fairways: Rating class and limiting features	Value
UrB:							
Urland---------------	80	Not limited		Not limited		Not limited	
VoA:							
Votaw----------------	95	Very limited		Very limited		Somewhat limited	
		Too sandy	1.00	Too sandy	1.00	Droughty	0.69
						Depth to saturated zone	0.02
W:							
Water----------------	100	Not rated		Not rated		Not rated	
WbA:							
Waller---------------	59	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dallardsville--------	36	Not limited		Not limited		Not limited	
WcB:							
Wiergate-------------	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
WnB:							
Woodville------------	80	Not limited		Not limited		Not limited	
WnD:							
Woodville------------	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.16
WnS:							
Woodville------------	50	Not limited		Not limited		Not limited	
Sawlit---------------	35	Not limited		Not limited		Not limited	

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Droughty	0.02			Droughty	0.02
BcA:							
Belrose	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.70	Too sandy	0.50	Droughty	0.70
		Too sandy	0.50	Wetness	0.12	Wetness	0.12
		Wetness	0.12				
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
BiB:							
Belrose	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.92	Too sandy	0.50	Droughty	0.92
		Too sandy	0.50	Wetness	0.12	Wetness	0.12
		Wetness	0.12				
BoB:							
Boykin	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	1.00	Too sandy	0.50	Droughty	1.00
		Too sandy	0.50	Droughty	0.13	Too sandy	0.50
BrC:							
Browndell	55	Very limited		Very limited		Very limited	
		Droughty	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Potentially or highly erodible	1.00	Droughty	0.99	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
Kitterll	35	Very limited		Very limited		Very limited	
		Droughty	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Potentially or highly erodible	1.00	Droughty	0.99	Potentially or highly erodible	1.00
		Too sandy	0.50	Too sandy	0.50	Too sandy	0.50

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Droughty	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Potentially or highly erodible	1.00	Droughty	0.92	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Slope	1.00
						Percs slowly	0.50
Kitterll	35	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Bedrock	1.00	Potentially or highly erodible	1.00	Bedrock	1.00
		Potentially or highly erodible	1.00	Bedrock	1.00	Potentially or highly erodible	1.00
						Slope	1.00
BrG:							
Browndell	45	Very limited		Very limited		Very limited	
		Droughty	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Bedrock	1.00	Bedrock	1.00	Slope	1.00
		Potentially or highly erodible	1.00	Droughty	0.98	Bedrock	1.00
		Slope	0.78	Slope	0.78	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
Kitterll	40	Very limited		Very limited		Very limited	
		Droughty	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Potentially or highly erodible	1.00	Droughty	1.00	Potentially or highly erodible	1.00
						Slope	1.00
BuB:							
Burkeville	95	Very limited		Very limited		Very limited	
		Too clayey	1.00	Potentially or highly erodible	1.00	Too clayey	1.00
		Potentially or highly erodible	1.00	Too clayey	1.00	Potentially or highly erodible	1.00
		Droughty	0.92	Percs slowly	0.50	Droughty	0.92
		Percs slowly	0.50			Percs slowly	0.50
BuD:							
Burkeville	95	Very limited		Very limited		Very limited	
		Too clayey	1.00	Potentially or highly erodible	1.00	Too clayey	1.00
		Potentially or highly erodible	1.00	Too clayey	1.00	Potentially or highly erodible	1.00
		Droughty	0.92	Percs slowly	0.50	Slope	1.00
		Percs slowly	0.50			Droughty	0.92
						Percs slowly	0.50

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
CgA:							
Chambliss	88	Very limited		Somewhat limited		Very limited	
		Droughty	1.00	Too sandy	0.50	Droughty	1.00
		Too sandy	0.50	Droughty	0.15	Too sandy	0.50
CiA:							
Choates	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.78	Wetness	0.75	Droughty	0.78
		Wetness	0.75	Too sandy	0.50	Wetness	0.75
		Too sandy	0.50			Too sandy	0.50
CkB:							
Colita	85	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.21			Droughty	0.21
CkC:							
Colita	45	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.05			Droughty	0.05
Laska	35	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.44	Wetness	0.44	Wetness	0.44
		Droughty	0.32			Droughty	0.32
CmB:							
Colmesneil	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	1.00	Too sandy	0.50	Droughty	1.00
		Too sandy	0.50	Droughty	0.18	Too sandy	0.50
CoB:							
Corrigan	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.94	Wetness	0.94	Wetness	0.94
		Droughty	0.58	Percs slowly	0.50	Droughty	0.58
		Percs slowly	0.50	Bedrock	0.20	Percs slowly	0.50
		Bedrock	0.20			Bedrock	0.20
CoE:							
Corrigan	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.94	Wetness	0.94	Slope	1.00
		Droughty	0.58	Percs slowly	0.50	Wetness	0.94
		Percs slowly	0.50	Bedrock	0.20	Droughty	0.58
		Bedrock	0.20			Percs slowly	0.50

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
DoB:							
Doucette	90	Very limited		Very limited		Very limited	
		Droughty	1.00	Potentially or highly erodible	1.00	Droughty	1.00
		Potentially or highly erodible	1.00	Too sandy	0.50	Potentially or highly erodible	1.00
		Too sandy	0.50	Droughty	0.37	Too sandy	0.50
EtA:							
Estes	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
Angelina	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
EvA:							
Evadale	85	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.99	Too sandy	0.50	Droughty	0.99
		Too sandy	0.50				
HhD:							
Hillister	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	1.00	Too sandy	0.50	Droughty	1.00
		Too sandy	0.50	Droughty	0.02	Slope	1.00
						Too sandy	0.50
IbA:							
Iulus	51	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.50	Flooding	0.50	Flooding	1.00
		Wetness	0.04	Wetness	0.04	Wetness	0.04
Bleakwood	44	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover		Domestic grasses and legumes for food and cover		Irrigated grain and seed crops for food and cover	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
KeB:							
Kenefick	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
		Droughty	0.13			Droughty	0.13
KfA:							
Kenefick	55	Somewhat limited		Not limited		Somewhat limited	
		Droughty	0.14			Droughty	0.14
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
KgA:							
Kirbyville	53	Somewhat limited		Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
Niwana	34	Not limited		Not limited		Not limited	
KiB:							
Kirbyville	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
KnB:							
Kountze	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Wetness	0.99	Wetness	0.99	Wetness	0.99
KoA:							
Koury	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Flooding	1.00
		Flooding	0.50	Flooding	0.50	Potentially or highly erodible	1.00
Lb:							
Laneville	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Flooding	1.00
		Flooding	0.50	Flooding	0.50	Potentially or highly erodible	1.00
		Wetness	0.44	Wetness	0.44	Wetness	0.44
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
		Droughty	0.02			Droughty	0.02

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
LcB:							
Laska	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.44	Wetness	0.44	Wetness	0.44
		Droughty	0.32			Droughty	0.32
LvA:							
Lelavale	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
MpA:							
Mollville	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
Besner	35	Somewhat limited		Not limited		Somewhat limited	
		Droughty	0.05			Droughty	0.05
NhB:							
Newco	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
NhD:							
Newco	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.33	Percs slowly	0.33	Slope	1.00
						Percs slowly	0.33
NoA:							
Nona	70	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
Dallardsville	20	Not limited		Not limited		Not limited	
OiA:							
Olive	65	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
Dallardsville	25	Not limited		Not limited		Not limited	
OtB:							
Otanya	90	Not limited		Not limited		Not limited	
OtC:							
Otanya	95	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
		Excess salt	1.00	Excess salt	1.00	Excess salt	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
Pophers	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Wetness	0.99	Wetness	0.99	Wetness	0.99
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Droughty	0.20			Droughty	0.20
PmB:							
Pinetucky	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
RaB:							
Rayburn	80	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
		Droughty	0.01			Droughty	0.01
RaD:							
Rayburn	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Slope	1.00
		Droughty	0.01			Percs slowly	0.50
						Droughty	0.01
ReB:							
Redco	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Potentially or highly erodible	1.00	Too clayey	1.00
		Potentially or highly erodible	1.00	Too clayey	1.00	Potentially or highly erodible	1.00
		Droughty	0.82	Percs slowly	0.50	Droughty	0.82
		Percs slowly	0.50			Percs slowly	0.50
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Potentially or highly erodible	1.00	Too clayey	1.00
		Potentially or highly erodible	1.00	Too clayey	1.00	Potentially or highly erodible	1.00
		Droughty	0.82	Percs slowly	0.50	Slope	1.00
		Percs slowly	0.50			Droughty	0.82
						Percs slowly	0.50

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
RrB:							
Rogan	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Too gravelly, cobbly, or stony	0.18	Too gravelly, cobbly, or stony	0.18	Too gravelly, cobbly, or stony	0.18
RrF:							
Rogan	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Too gravelly, cobbly, or stony	0.18	Too gravelly, cobbly, or stony	0.18	Too gravelly, cobbly, or stony	0.18
SeD:							
Sawlit	45	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Wetness	0.04	Wetness	0.04	Wetness	0.04
Sawtown	35	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.01			Droughty	0.01
ShB:							
Shankler	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	1.00	Too sandy	0.50	Droughty	1.00
		Too sandy	0.50	Droughty	0.08	Too sandy	0.50
						Slope	0.12
ShD:							
Shankler	85	Very limited		Somewhat limited		Very limited	
		Droughty	1.00	Too sandy	0.50	Slope	1.00
		Too sandy	0.50	Droughty	0.08	Droughty	1.00
						Too sandy	0.50
SiC:							
Silsbee	90	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
SiD:							
Silsbee	95	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
						Slope	0.88
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
Dallardsville	33	Not limited		Not limited		Not limited	

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
SsA:							
Spurger	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Percs slowly	0.17	Percs slowly	0.17	Percs slowly	0.17
		Droughty	0.01			Droughty	0.01
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	1.00	Percs slowly	1.00	Percs slowly	1.00
StM:							
Stringtown	65	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
						Slope	1.00
Bonwier	25	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.60			Slope	1.00
						Droughty	0.60
TuB:							
Turkey	95	Very limited		Very limited		Very limited	
		Droughty	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00	Droughty	1.00	Droughty	1.00
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	0.33	Percs slowly	0.33	Percs slowly	0.33
Babco	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75	Wetness	0.75
		Too sandy	0.50	Too sandy	0.50		
UrB:							
Urland	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Droughty	0.01			Droughty	0.01
VoA:							
Votaw	95	Very limited		Somewhat limited		Very limited	
		Droughty	1.00	Droughty	0.68	Droughty	1.00
		Too sandy	1.00	Too sandy	0.50	Too sandy	0.50
		Wetness	0.40	Wetness	0.40	Wetness	0.40
W:							
Water	100	Not rated		Not rated		Not rated	

Table 15.--Grain and Seed Crops, Domestic Grasses and Forbs, and Irrigated Cover Crops--Continued

Map symbol and soil name	Pct. of map unit	Grain and seed crops for food and cover: Rating class and limiting features	Value	Domestic grasses and legumes for food and cover: Rating class and limiting features	Value	Irrigated grain and seed crops for food and cover: Rating class and limiting features	Value
WbA:							
Waller	59	Very limited		Very limited		Very limited	
		Wetness	1.00	Wetness	1.00	Wetness	1.00
		Percs slowly	0.70	Percs slowly	0.70	Percs slowly	0.70
Dallardsville	36	Not limited		Not limited		Not limited	
WcB:							
Wiergate	90	Very limited		Very limited		Very limited	
		Too clayey	1.00	Potentially or highly erodible	1.00	Too clayey	1.00
		Potentially or highly erodible	1.00	Too clayey	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
WnB:							
Woodville	80	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
WnD:							
Woodville	85	Very limited		Very limited		Very limited	
		Potentially or highly erodible	1.00	Potentially or highly erodible	1.00	Potentially or highly erodible	1.00
		Percs slowly	0.50	Percs slowly	0.50	Slope	1.00
						Percs slowly	0.50
WnS:							
Woodville	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Percs slowly	0.50	Percs slowly	0.50	Percs slowly	0.50
		Droughty	0.05			Droughty	0.05
Sawlit	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Wetness	0.04	Wetness	0.04	Wetness	0.04
		Droughty	0.01			Droughty	0.01

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value
AaB:					
Alazan	95	Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75
BcA:					
Belrose	55	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Wetness	0.12
		Wetness	0.12		
Caneyhead	30	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
BiB:					
Belrose	85	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Wetness	0.12
		Wetness	0.12		
BoB:					
Boykin	85	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.13	Droughty	0.13
BrC:					
Browndell	55	Somewhat limited		Very limited	
		Droughty	0.99	Bedrock	1.00
				Droughty	0.99
Kitterll	35	Somewhat limited		Very limited	
		Droughty	0.99	Bedrock	1.00
		Too sandy	0.50	Droughty	0.99
				Too sandy	0.50
BrD:					
Browndell	55	Somewhat limited		Very limited	
		Droughty	0.92	Bedrock	1.00
				Droughty	0.92
Kitterll	35	Very limited		Very limited	
		Droughty	1.00	Droughty	1.00
				Bedrock	1.00
BrG:					
Browndell	45	Somewhat limited		Very limited	
		Droughty	0.98	Bedrock	1.00
				Droughty	0.98
Kitterll	40	Very limited		Very limited	
		Droughty	1.00	Bedrock	1.00
				Droughty	1.00

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value
BuB:					
Burkeville----------	95	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
BuD:					
Burkeville----------	95	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
CgA:					
Chambliss-----------	88	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.15	Droughty	0.15
CiA:					
Choates-------------	90	Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75
		Too sandy	0.50	Too sandy	0.50
CkB:					
Colita--------------	85	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
CkC:					
Colita--------------	45	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Laska---------------	35	Somewhat limited		Somewhat limited	
		Wetness	0.44	Wetness	0.44
CmB:					
Colmesneil----------	90	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.18	Droughty	0.18
CoB:					
Corrigan------------	85	Somewhat limited		Somewhat limited	
		Wetness	0.94	Wetness	0.94
				Bedrock	0.20
CoE:					
Corrigan------------	85	Somewhat limited		Somewhat limited	
		Wetness	0.94	Wetness	0.94
				Bedrock	0.20
CyA:					
Cypress-------------	95	Very limited		Very limited	
		Wetness	1.00	Too clayey	1.00
		Too clayey	1.00	Wetness	1.00
DoB:					
Doucette------------	90	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.37	Droughty	0.37

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value
EtA:					
Estes	55	Very limited		Very limited	
		Wetness	1.00	Too clayey	1.00
		Too clayey	1.00	Wetness	1.00
Angelina	35	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
EvA:					
Evadale	85	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
GPI:					
Pits	100	Not rated		Not rated	
HaA:					
Hainesville	85	Somewhat limited		Not limited	
		Too sandy	0.50		
HhD:					
Hillister	90	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.02	Droughty	0.02
IbA:					
Iulus	51	Somewhat limited		Somewhat limited	
		Wetness	0.04	Wetness	0.04
Bleakwood	44	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
JhA:					
Jayhawker	95	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
KeB:					
Kenefick	85	Not limited		Not limited	
KfA:					
Kenefick	55	Not limited		Not limited	
Caneyhead	30	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
KgA:					
Kirbyville	53	Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75
Niwana	34	Not limited		Not limited	
KiB:					
Kirbyville	85	Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Upland wild herbaceous plants: Value	Upland shrubs and vines: Rating class and limiting features	Upland shrubs and vines: Value
KnB:					
Kountze	85	Somewhat limited		Somewhat limited	
		Wetness	0.99	Wetness	0.99
KoA:					
Koury	85	Not limited		Not limited	
Lb:					
Laneville	85	Somewhat limited		Somewhat limited	
		Wetness	0.44	Wetness	0.44
LcB:					
Laska	80	Somewhat limited		Somewhat limited	
		Wetness	0.44	Wetness	0.44
LvA:					
Lelavale	95	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
MpA:					
Mollville	50	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Besner	35	Not limited		Not limited	
NhB:					
Newco	85	Not limited		Not limited	
NhD:					
Newco	85	Not limited		Not limited	
NoA:					
Nona	70	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Dallardsville	20	Not limited		Not limited	
OiA:					
Olive	65	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Dallardsville	25	Not limited		Not limited	
OtB:					
Otanya	90	Not limited		Not limited	
OtC:					
Otanya	95	Not limited		Not limited	

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value
Oz:					
Ozias	55	Very limited		Very limited	
		Wetness	1.00	Too clayey	1.00
		Too clayey	1.00	Wetness	1.00
		Excess salt	1.00	Excess salt	1.00
Pophers	35	Somewhat limited		Somewhat limited	
		Wetness	0.99	Wetness	0.99
		Too clayey	0.50	Too clayey	0.50
PkA:					
Plank	95	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
PmB:					
Pinetucky	80	Not limited		Not limited	
RaB:					
Rayburn	80	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
RaD:					
Rayburn	90	Not limited		Not limited	
ReB:					
Redco	90	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
ReD:					
Redco	90	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
RrB:					
Rogan	90	Not limited		Not limited	
RrF:					
Rogan	90	Not limited		Not limited	
SeD:					
Sawlit	45	Somewhat limited		Somewhat limited	
		Wetness	0.04	Wetness	0.04
Sawtown	35	Not limited		Not limited	
ShB:					
Shankler	80	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.08	Droughty	0.08
ShD:					
Shankler	85	Somewhat limited		Somewhat limited	
		Too sandy	0.50	Too sandy	0.50
		Droughty	0.08	Droughty	0.08

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value
SiC:					
Silsbee	90	Not limited		Not limited	
SiD:					
Silsbee	95	Not limited		Not limited	
SnA:					
Sorter	61	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Dallardsville	33	Not limited		Not limited	
SsA:					
Spurger	50	Not limited		Not limited	
Caneyhead	30	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
StM:					
Stringtown	65	Not limited		Not limited	
Bonwier	25	Not limited		Not limited	
TuB:					
Turkey	95	Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00
		Droughty	1.00	Droughty	1.00
TyA:					
Tyden	60	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Babco	25	Somewhat limited		Somewhat limited	
		Wetness	0.75	Wetness	0.75
		Too sandy	0.50		
UrB:					
Urland	80	Not limited		Not limited	
VoA:					
Votaw	95	Very limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.68
		Droughty	0.68	Too sandy	0.50
		Wetness	0.40	Wetness	0.40
W:					
Water	100	Not rated		Not rated	
WbA:					
Waller	59	Very limited		Very limited	
		Wetness	1.00	Wetness	1.00
Dallardsville	36	Not limited		Not limited	

Table 16.--Upland Wild Herbaceous Plants, Shrubs, and Vines--Continued

Map symbol and soil name	Pct. of map unit	Upland wild herbaceous plants: Rating class and limiting features	Value	Upland shrubs and vines: Rating class and limiting features	Value
WcB:					
Wiergate------------	90	Very limited		Very limited	
		Too clayey	1.00	Too clayey	1.00
WnB:					
Woodville-----------	80	Not limited		Not limited	
WnD:					
Woodville-----------	85	Not limited		Not limited	
WnS:					
Woodville-----------	50	Not limited		Not limited	
Sawlit--------------	35	Somewhat limited		Somewhat limited	
		Wetness	0.04	Wetness	0.04

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.86	Depth to saturated zone	1.00
						Growing season wetness	1.00
BcA:							
Belrose	55	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.38	Depth to saturated zone	1.00
						Growing season wetness	1.00
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
BiB:							
Belrose	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.38	Depth to saturated zone	1.00
						Growing season wetness	1.00
BoB:							
Boykin	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.13	Droughty	0.13	Droughty	0.13
BrC:							
Browndell	55	Very limited		Very limited		Very limited	
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Droughty	0.99	Droughty	0.99	Droughty	0.99
Kitterll	35	Very limited		Very limited		Very limited	
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Droughty	0.99	Droughty	0.99	Droughty	0.99
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Droughty	0.92	Droughty	0.92	Droughty	0.92
Kitterll	35	Very limited		Very limited		Very limited	
		Droughty	1.00	Bedrock	1.00	Bedrock	1.00
		Bedrock	1.00	Droughty	1.00	Droughty	1.00

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrG:							
Browndell-----------	45	Very limited		Very limited		Very limited	
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Droughty	0.98	Droughty	0.98	Droughty	0.98
Kitterll------------	40	Very limited		Very limited		Very limited	
		Bedrock	1.00	Bedrock	1.00	Bedrock	1.00
		Droughty	1.00	Droughty	1.00	Droughty	1.00
BuB:							
Burkeville----------	95	Not limited		Not limited		Not limited	
BuD:							
Burkeville----------	95	Not limited		Not limited		Not limited	
CgA:							
Chambliss-----------	88	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.15	Droughty	0.15	Droughty	0.15
CiA:							
Choates-------------	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.86	Depth to saturated zone	1.00
						Growing season wetness	0.50
CkB:							
Colita--------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
CkC:							
Colita--------------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Laska---------------	35	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.68	Depth to saturated zone	1.00
						Growing season wetness	1.00
CmB:							
Colmesneil----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.18	Droughty	0.18	Droughty	0.18

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CoB:							
Corrigan	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.96	Depth to saturated zone	1.00
		Bedrock	0.20	Bedrock	0.20	Growing season wetness	0.50
						Bedrock	0.20
CoE:							
Corrigan	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.96	Depth to saturated zone	1.00
		Bedrock	0.20	Bedrock	0.20	Growing season wetness	0.50
						Bedrock	0.20
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
DoB:							
Doucette	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.37	Droughty	0.37	Droughty	0.37
EtA:							
Estes	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Angelina	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
EvA:							
Evadale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Not limited		Not limited		Very limited	
						Growing season wetness	1.00

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees: Rating class and limiting features	Value	Upland coniferous trees: Rating class and limiting features	Value	Upland mixed deciduous and coniferous trees: Rating class and limiting features	Value
HhD:							
Hillister	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.02	Droughty	0.02	Droughty	0.02
IbA:							
Iulus	51	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.24	Depth to saturated zone	1.00
						Growing season wetness	1.00
Bleakwood	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
KeB:							
Kenefick	85	Not limited		Not limited		Very limited	
						Growing season wetness	1.00
KfA:							
Kenefick	55	Not limited		Not limited		Very limited	
						Growing season wetness	1.00
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
KgA:							
Kirbyville	53	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.86	Depth to saturated zone	1.00
						Growing season wetness	0.50
Niwana	34	Not limited		Not limited		Not limited	
KiB:							
Kirbyville	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.86	Depth to saturated zone	1.00
						Growing season wetness	0.50

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KnB:							
Kountze	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.99	Depth to saturated zone	1.00
						Growing season wetness	1.00
KoA:							
Koury	85	Not limited		Not limited		Not limited	
Lb:							
Laneville	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.68	Depth to saturated zone	1.00
						Growing season wetness	1.00
LcB:							
Laska	80	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.68	Depth to saturated zone	1.00
						Growing season wetness	1.00
LvA:							
Lelavale	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
MpA:							
Mollville	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Besner	35	Not limited		Not limited		Not limited	
NhB:							
Newco	85	Not limited		Not limited		Not limited	
NhD:							
Newco	85	Not limited		Not limited		Not limited	
NoA:							
Nona	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Dallardsville	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Wetness	0.11	Depth to saturated zone	0.99
						Growing season wetness	0.50

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees: Rating class and limiting features	Value	Upland coniferous trees: Rating class and limiting features	Value	Upland mixed deciduous and coniferous trees: Rating class and limiting features	Value
OiA:							
Olive	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Dallardsville	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Wetness	0.11	Depth to saturated zone	0.99
						Growing season wetness	0.50
OtB:							
Otanya	90	Somewhat limited		Not limited		Somewhat limited	
		Depth to saturated zone	0.09			Growing season wetness	0.50
						Depth to saturated zone	0.09
OtC:							
Otanya	95	Somewhat limited		Not limited		Somewhat limited	
		Depth to saturated zone	0.09			Growing season wetness	0.50
						Depth to saturated zone	0.09
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Pophers	35	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.99	Depth to saturated zone	1.00
						Growing season wetness	1.00
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
PmB:							
Pinetucky	80	Not limited		Not limited		Not limited	
RaB:							
Rayburn	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees: Rating class and limiting features	Value	Upland coniferous trees: Rating class and limiting features	Value	Upland mixed deciduous and coniferous trees: Rating class and limiting features	Value
RaD:							
Rayburn	90	Somewhat limited		Not limited		Somewhat limited	
		Depth to saturated zone	0.84			Depth to saturated zone	0.84
ReB:							
Redco	90	Not limited		Not limited		Not limited	
ReD:							
Redco	90	Not limited		Not limited		Not limited	
RrB:							
Rogan	90	Not limited		Not limited		Not limited	
RrF:							
Rogan	90	Not limited		Not limited		Not limited	
SeD:							
Sawlit	45	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.24	Depth to saturated zone	1.00
						Growing season wetness	1.00
Sawtown	35	Somewhat limited		Not limited		Very limited	
		Depth to saturated zone	0.68			Growing season wetness	1.00
						Depth to saturated zone	0.68
ShB:							
Shankler	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.08	Droughty	0.08	Droughty	0.08
ShD:							
Shankler	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Droughty	0.08	Droughty	0.08	Droughty	0.08
SiC:							
Silsbee	90	Not limited		Not limited		Not limited	
SiD:							
Silsbee	95	Not limited		Not limited		Not limited	
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Dallardsville	33	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Wetness	0.11	Depth to saturated zone	0.99
						Growing season wetness	0.50

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees: Rating class and limiting features	Value	Upland coniferous trees: Rating class and limiting features	Value	Upland mixed deciduous and coniferous trees: Rating class and limiting features	Value
SsA:							
Spurger	50	Not limited		Not limited		Not limited	
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
StM:							
Stringtown	65	Not limited		Not limited		Not limited	
Bonwier	25	Not limited		Not limited		Not limited	
TuB:							
Turkey	95	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Growing season wetness	1.00
						Droughty	1.00
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	1.00
Babco	25	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.86	Depth to saturated zone	1.00
						Growing season wetness	1.00
UrB:							
Urland	80	Not limited		Not limited		Not limited	
VoA:							
Votaw	95	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Droughty	0.68	Depth to saturated zone	1.00
		Droughty	0.68	Wetness	0.65	Growing season wetness	1.00
						Droughty	0.68
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Wetness	1.00	Depth to saturated zone	1.00
						Growing season wetness	0.50
Dallardsville	36	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Wetness	0.11	Depth to saturated zone	0.99
						Growing season wetness	0.50

Table 17.--Upland Deciduous Trees, Coniferous Trees, and Mixed Trees--Continued

Map symbol and soil name	Pct. of map unit	Upland deciduous trees		Upland coniferous trees		Upland mixed deciduous and coniferous trees	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WcB:							
Wiergate	90	Not limited		Not limited		Not limited	
WnB:							
Woodville	80	Not limited		Not limited		Not limited	
WnD:							
Woodville	85	Not limited		Not limited		Not limited	
WnS:							
Woodville	50	Not limited		Not limited		Not limited	
Sawlit	35	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Wetness	0.24	Depth to saturated zone	1.00
						Growing season wetness	1.00

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
AaB:							
Alazan	95	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too dry	0.53
		Too dry	0.53			Too acid	0.44
BcA:							
Belrose	55	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.99
		Too dry	0.93			Too dry	0.93
		Too sandy	0.50				
Caneyhead	30	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				
BiB:							
Belrose	85	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.99
		Too dry	0.93			Too dry	0.93
		Too sandy	0.50				
BoB:							
Boykin	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.13	Too acid	0.44
		Too sandy	0.50				
BrC:							
Browndell	55	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.99	Too acid	0.44
Kitterll	35	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.99	Too acid	0.04
		Too sandy	0.50				

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.92	Too acid	0.44
Kitterll	35	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	1.00	Too acid	0.04
BrG:							
Browndell	45	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.98	Too acid	0.44
Kitterll	40	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	1.00	Too acid	0.04
BuB:							
Burkeville	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00				
BuD:							
Burkeville	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00				
CgA:							
Chambliss	88	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.15	Too acid	0.78
		Too sandy	0.50				
CiA:							
Choates	90	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00
		Too dry	0.53			Too dry	0.53
		Too sandy	0.50				
CkB:							
Colita	85	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.44
		Too dry	0.04			Too dry	0.04

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
CkC:							
Colita	45	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.44
		Too dry	0.04			Too dry	0.04
Laska	35	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.92
		Too dry	0.76			Too dry	0.76
CmB:							
Colmesneil	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.18	Too acid	0.44
		Too sandy	0.50				
CoB:							
Corrigan	85	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.99
		Too dry	0.29			Too dry	0.29
CoE:							
Corrigan	85	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.99
		Too dry	0.29			Too dry	0.29
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Too acid	1.00
		Long flooding	1.00	Ponding	1.00	Ponding	0.50
DoB:							
Doucette	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.37	Too acid	0.78
		Too sandy	0.50				
EtA:							
Estes	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Long flooding	0.50	Flooding	0.50	Too acid	0.92
Angelina	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Flooding	1.00	Too acid	1.00
		Long flooding	1.00	Ponding	1.00	Ponding	0.50
EvA:							
Evadale	85	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
GPI:							
Pits	100	Not rated		Not rated		Very limited	
						Too dry	1.00
						Excess salt	1.00
HaA:							
Hainesville	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.44
		Too sandy	0.50				
HhD:							
Hillister	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.02	Too acid	1.00
		Too sandy	0.50				
IbA:							
Iulus	51	Somewhat limited		Not limited		Very limited	
		Too dry	0.98			Too acid	1.00
						Too dry	0.98
Bleakwood	44	Somewhat limited		Somewhat limited		Somewhat limited	
		Long flooding	0.50	Flooding	0.50	Too acid	0.78
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				
KeB:							
Kenefick	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.92
KfA:							
Kenefick	55	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.44
Caneyhead	30	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
KgA:							
Kirbyville----------	53	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00
		Too dry	0.53			Too dry	0.53
Niwana--------------	34	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
KiB:							
Kirbyville----------	85	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.68
		Too dry	0.53			Too dry	0.53
KnB:							
Kountze-------------	85	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.92
		Too dry	0.14			Too dry	0.14
KoA:							
Koury---------------	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
						Too acid	1.00
Lb:							
Laneville-----------	85	Somewhat limited		Not limited		Somewhat limited	
		Too dry	0.76			Too acid	0.99
						Too dry	0.76
LcB:							
Laska---------------	80	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.92
		Too dry	0.76			Too dry	0.76
LvA:							
Lelavale------------	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Too acid	1.00
		Infrequent flooding	1.00			Ponding	0.50
						Excess salt	0.01
MpA:							
Mollville-----------	50	Very limited		Very limited		Somewhat limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	0.44
		Ponding	0.50				
Besner--------------	35	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.22

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
NhB:							
Newco	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
NhD:							
Newco	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
NoA:							
Nona	70	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00
Dallardsville	20	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00
OiA:							
Olive	65	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				
Dallardsville	25	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00
OtB:							
Otanya	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.91	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.92
OtC:							
Otanya	95	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.91	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.92
Oz:							
Ozias	55	Somewhat limited		Somewhat limited		Very limited	
		Long flooding	0.50	Flooding	0.50	Too acid	1.00
		Excess salt	0.01	Excess salt	0.01	Excess salt	1.00
Pophers	35	Somewhat limited		Somewhat limited		Very limited	
		Long flooding	0.50	Flooding	0.50	Too acid	1.00
		Too dry	0.14			Too dry	0.14
						Excess salt	0.01

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
PkA:							
Plank	95	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00
PmB:							
Pinetucky	80	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
RaB:							
Rayburn	80	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00
RaD:							
Rayburn	90	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.16	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00
ReB:							
Redco	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.44
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.44
RrB:							
Rogan	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
RrF:							
Rogan	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
SeD:							
Sawlit	45	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too dry	0.98
		Too dry	0.98			Too acid	0.44
Sawtown	35	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.32	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ShB:							
Shankler	80	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.08	Too acid	0.22
		Too sandy	0.50				
ShD:							
Shankler	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00	Droughty	0.08	Too acid	0.22
		Too sandy	0.50				
SiC:							
Silsbee	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00
SiD:							
Silsbee	95	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				
Dallardsville	33	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00
SsA:							
Spurger	50	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.99
Caneyhead	30	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
StM:							
Stringtown	65	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.44
Bonwier	25	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
TuB:							
Turkey	95	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too dry	1.00	Too dry	1.00
		Too dry	1.00	Droughty	1.00	Too sandy	1.00
		Infrequent flooding	1.00			Too acid	0.92
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Infrequent flooding	1.00	Ponding	1.00	Too acid	1.00
		Ponding	0.50				
Babco	25	Very limited		Not limited		Very limited	
		Infrequent flooding	1.00			Too acid	1.00
		Too dry	0.53			Too dry	0.53
		Too sandy	0.50				
UrB:							
Urland	80	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
VoA:							
Votaw	95	Very limited		Somewhat limited		Somewhat limited	
		Too sandy	1.00	Droughty	0.68	Too acid	0.78
		Infrequent flooding	1.00			Too dry	0.78
		Too dry	0.78			Too sandy	0.50
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too acid	0.92
Dallardsville	36	Very limited		Somewhat limited		Very limited	
		Too dry	1.00	Too dry	0.01	Too dry	1.00
		Infrequent flooding	1.00			Too acid	1.00

Table 18.--Riparian Herbaceous Plants, Shrubs, Vines, and Trees, and Freshwater Wetland Plants--Continued

Map symbol and soil name	Pct. of map unit	Riparian herbaceous plants: Rating class and limiting features	Value	Riparian shrubs, vines, and trees: Rating class and limiting features	Value	Freshwater wetland plants: Rating class and limiting features	Value
WcB:							
Wiergate	90	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00				
WnB:							
Woodville	80	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
WnD:							
Woodville	85	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.78
WnS:							
Woodville	50	Very limited		Very limited		Very limited	
		Too dry	1.00	Too dry	1.00	Too dry	1.00
		Infrequent flooding	1.00			Too acid	0.44
Sawlit	35	Very limited		Not limited		Somewhat limited	
		Infrequent flooding	1.00			Too dry	0.98
		Too dry	0.98			Too acid	0.44

Table 19.--Dwellings and Small Commercial Buildings

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
BcA:							
Belrose	55	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.99		
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.22		
BiB:							
Belrose	85	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.99		
BoB:							
Boykin	85	Not limited		Not limited		Not limited	
BrC:							
Browndell	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Shrink-swell	1.00
Kitterll	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
Kitterll	35	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
BrG:							
Browndell	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Shrink-swell	1.00
Kitterll	40	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
BuB:							
Burkeville	95	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
BuD:							
Burkeville	95	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
CgA:							
Chambliss	88	Not limited		Not limited		Not limited	
CiA:							
Choates	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
CkB:							
Colita	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CkC:							
Colita	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Laska	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
CmB:							
Colmesneil	90	Not limited		Not limited		Not limited	
CoB:							
Corrigan	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.81	Shrink-swell	1.00	Depth to saturated zone	0.81
				Depth to soft bedrock	0.20		

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
CoE:							
Corrigan	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.81	Shrink-swell	1.00	Slope	1.00
		Slope	0.16	Depth to soft bedrock	0.20	Depth to saturated zone	0.81
				Slope	0.16		
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
DoB:							
Doucette	90	Not limited		Not limited		Not limited	
EtA:							
Estes	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Angelina	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EvA:							
Evadale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
HhD:							
Hillister	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
IbA:							
Iulus	51	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.99		
Bleakwood	44	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
KeB:							
Kenefick	85	Not limited		Not limited		Not limited	
KfA:							
Kenefick	55	Not limited		Somewhat limited		Not limited	
				Shrink-swell	0.50		
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.22		
KgA:							
Kirbyville	53	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Niwana	34	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
KiB:							
Kirbyville	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
KnB:							
Kountze	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
KoA:							
Koury	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Lb:							
Laneville	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07	Shrink-swell	1.00	Depth to saturated zone	0.07
LcB:							
Laska	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
LvA:							
Lelavale	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MpA:							
Mollville	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Besner	35	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
NhB:							
Newco	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
NhD:							
Newco	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.16	Slope	0.16	Slope	1.00
NoA:							
Nona	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.38	Shrink-swell	1.00	Shrink-swell	0.38
Dallardsville	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95	Shrink-swell	0.11

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
OtB:							
Otanya	90	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.35		
OtC:							
Otanya	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.35		
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Pophers	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PmB:							
Pinetucky	80	Not limited		Not limited		Not limited	
RaB:							
Rayburn	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
RaD:							
Rayburn	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.16	Depth to saturated zone	0.82	Slope	1.00
				Slope	0.16		
ReB:							
Redco	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.16	Slope	0.16	Slope	1.00

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
RrB:							
Rogan	90	Not limited		Not limited		Not limited	
RrF:							
Rogan	90	Not limited		Not limited		Not limited	
SeD:							
Sawlit	45	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
				Depth to saturated zone	0.99		
Sawtown	35	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
				Depth to saturated zone	0.73		
ShB:							
Shankler	80	Not limited		Not limited		Somewhat limited	
						Slope	0.12
ShD:							
Shankler	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
SiC:							
Silsbee	90	Not limited		Not limited		Not limited	
SiD:							
Silsbee	95	Not limited		Not limited		Somewhat limited	
						Slope	0.88
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dallardsville	33	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95	Shrink-swell	0.11
SsA:							
Spurger	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.03		
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.22		

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
StM:							
Stringtown	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Slope	1.00
Bonwier	25	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Slope	0.16	Slope	1.00
		Slope	0.16			Shrink-swell	0.50
TuB:							
Turkey	95	Not limited		Not limited		Not limited	
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Babco	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
UrB:							
Urland	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
VoA:							
Votaw	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.05	Depth to saturated zone	1.00	Depth to saturated zone	0.05
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dallardsville	36	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95	Shrink-swell	0.11
WcB:							
Wiergate	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
WnB:							
Woodville	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
WnD:							
Woodville	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.16	Slope	0.16	Slope	1.00

Table 19.--Dwellings and Small Commercial Buildings--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WnS:							
Woodville-----------	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Sawlit--------------	35	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.99		
				Shrink-swell	0.50		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
BcA:							
Belrose	55	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.99		
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
BiB:							
Belrose	85	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.99		
BoB:							
Boykin	85	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.14
BrC:							
Browndell	55	Very limited		Very limited		Not rated	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00		
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	1.00				
Kitterll	35	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
				Cutbanks cave	0.10	Droughty	0.99

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrD:							
Browndell-----------	55	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	0.16	Droughty	0.92
		Shrink-swell	1.00	Cutbanks cave	0.10	Slope	0.16
		Slope	0.16			Large stones content	0.03
Kitterll------------	35	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Droughty	1.00
						Slope	0.16
BrG:							
Browndell-----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	0.98
		Shrink-swell	1.00			Large stones content	0.03
Kitterll------------	40	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Droughty	1.00
				Cutbanks cave	0.10	Slope	0.16
BuB:							
Burkeville----------	95	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00		
BuD:							
Burkeville----------	95	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00	Slope	0.16
		Slope	0.16	Slope	0.16		
CgA:							
Chambliss-----------	88	Not limited		Somewhat limited		Somewhat limited	
				Cutbanks cave	0.10	Droughty	0.16
CiA:							
Choates-------------	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	1.00		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkB:							
Colita	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.94	Depth to saturated zone	1.00	Depth to saturated zone	0.94
				Cutbanks cave	0.10		
CkC:							
Colita	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.94	Depth to saturated zone	1.00	Depth to saturated zone	0.94
				Cutbanks cave	0.10		
Laska	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.03	Depth to saturated zone	1.00	Depth to saturated zone	0.03
				Cutbanks cave	0.10		
CmB:							
Colmesneil	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.19
CoB:							
Corrigan	85	Very limited		Very limited		Not rated	
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	1.00	Too clayey	0.50		
		Depth to saturated zone	0.48	Depth to soft bedrock	0.20		
				Cutbanks cave	0.10		
CoE:							
Corrigan	85	Very limited		Very limited		Not rated	
		Low strength	1.00	Depth to saturated zone	1.00		
		Shrink-swell	1.00	Too clayey	0.50		
		Depth to saturated zone	0.48	Depth to soft bedrock	0.20		
		Slope	0.16	Slope	0.16		
				Cutbanks cave	0.10		
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	0.50	Cutbanks cave	0.10		
DoB:							
Doucette	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.39

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
EtA:							
Estes	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Flooding	0.80	Too clayey	1.00
		Shrink-swell	1.00	Too clayey	0.24		
Angelina	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
EvA:							
Evadale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10	Sodium content	1.00
		Shrink-swell	1.00				
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
HhD:							
Hillister	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.16	Cutbanks cave	1.00	Slope	0.16
				Slope	0.16	Droughty	0.03
IbA:							
Iulus	51	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Depth to saturated zone	0.99	Flooding	1.00
				Flooding	0.80		
				Cutbanks cave	0.10		
Bleakwood	44	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	0.22	Cutbanks cave	0.10		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
KeB:							
Kenefick	85	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
KfA:							
Kenefick	55	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
KgA:							
Kirbyville	53	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
Niwana	34	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
KiB:							
Kirbyville	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Cutbanks cave	0.10		
KnB:							
Kountze	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.75	Depth to saturated zone	1.00	Depth to saturated zone	0.75
				Cutbanks cave	0.10		
KoA:							
Koury	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Too clayey	1.00	Flooding	1.00
				Flooding	0.80		
				Cutbanks cave	0.10		
Lb:							
Laneville	85	Very limited		Very limited		Not rated	
		Flooding	1.00	Depth to saturated zone	1.00		
		Low strength	1.00	Flooding	0.80		
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Depth to saturated zone	0.03	Too clayey	0.03		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
LcB:							
Laska----------------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.03	Depth to saturated zone	1.00	Depth to saturated zone	0.03
				Cutbanks cave	0.10		
LvA:							
Lelavale------------	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Too clayey	0.12		
				Cutbanks cave	0.10		
MpA:							
Mollville-----------	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Cutbanks cave	1.00		
		Low strength	0.22				
Besner---------------	35	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
NhB:							
Newco----------------	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		
NhD:							
Newco----------------	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.50	Slope	0.16
		Shrink-swell	1.00	Slope	0.16		
		Slope	0.16				
NoA:							
Nona-----------------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.38	Cutbanks cave	0.10		
Dallardsville-------	20	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95		
				Cutbanks cave	0.10		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
OiA:							
Olive	65	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Dense layer	0.50	Too acid	1.00
				Cutbanks cave	0.10		
Dallardsville	25	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95		
				Cutbanks cave	0.10		
OtB:							
Otanya	90	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.35		
				Cutbanks cave	0.10		
OtC:							
Otanya	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.35		
				Cutbanks cave	0.10		
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Flooding	0.80	Too clayey	1.00
		Shrink-swell	1.00			Salinity	0.01
Pophers	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Low strength	1.00	Flooding	0.80	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Cutbanks cave	0.10		
		Shrink-swell	0.50				
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
PmB:							
Pinetucky	80	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaB:							
Rayburn	80	Very limited		Very limited		Not rated	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		
RaD:							
Rayburn	90	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	0.82	Slope	0.16
		Shrink-swell	1.00	Too clayey	0.50		
		Slope	0.16	Slope	0.16		
				Cutbanks cave	0.10		
ReB:							
Redco	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00		
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00	Slope	0.16
		Slope	0.16	Slope	0.16		
RrB:							
Rogan	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Gravel content	0.18
RrF:							
Rogan	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Gravel content	0.18
SeD:							
Sawlit	45	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.99		
		Shrink-swell	0.50	Cutbanks cave	0.10		
				Too clayey	0.03		
Sawtown	35	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.78	Depth to saturated zone	0.73		
		Shrink-swell	0.50	Too clayey	0.12		
				Cutbanks cave	0.10		
ShB:							
Shankler	80	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.09
ShD:							
Shankler	85	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
				Slope	0.63	Droughty	0.09

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SiC:							
Silsbee	90	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
SiD:							
Silsbee	95	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
Dallardsville	33	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95		
				Cutbanks cave	0.10		
SsA:							
Spurger	50	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.98		
		Shrink-swell	1.00	Cutbanks cave	0.10		
				Depth to saturated zone	0.03		
Caneyhead	30	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
StM:							
Stringtown	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.16	Slope	0.16	Slope	0.16
				Cutbanks cave	0.10		
Bonwier	25	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.16	Slope	0.16
		Shrink-swell	0.50				
		Slope	0.16				
TuB:							
Turkey	95	Not limited		Very limited		Very limited	
				Cutbanks cave	1.00	Droughty	1.00
						Too sandy	0.50

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
TyA:							
Tyden----------------	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Dense layer	0.50		
				Cutbanks cave	0.10		
Babco----------------	25	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to saturated zone	0.19
				Dense layer	0.50		
				Cutbanks cave	0.10		
UrB:							
Urland---------------	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Shrink-swell	0.50	Cutbanks cave	0.10		
VoA:							
Votaw----------------	95	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.40	Depth to saturated zone	1.00	Droughty	0.69
		Depth to saturated zone	0.02	Cutbanks cave	1.00	Depth to saturated zone	0.02
W:							
Water----------------	100	Not rated		Not rated		Not rated	
WbA:							
Waller---------------	59	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	0.10		
Dallardsville--------	36	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.11	Depth to saturated zone	0.95		
				Cutbanks cave	0.10		
WcB:							
Wiergate-------------	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Too clayey	1.00	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	1.00		
WnB:							
Woodville------------	80	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		
WnD:							
Woodville------------	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.50	Slope	0.16
		Shrink-swell	1.00	Slope	0.16		
		Slope	0.16	Cutbanks cave	0.10		

Table 20.--Local Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WnS:							
Woodville-----------	50	Very limited		Somewhat limited		Not limited	
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Low strength	1.00	Too clayey	0.03		
Sawlit--------------	35	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.78	Depth to saturated zone	0.99		
				Cutbanks cave	0.10		
				Too clayey	0.03		

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
AaB:					
Alazan	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
BcA:					
Belrose	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
Caneyhead	30	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
BiB:					
Belrose	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
BoB:					
Boykin	85	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
				Slope	0.08
BrC:					
Browndell	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Slope	0.32
Kitterll	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	0.50
				Slope	0.08

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
BrD:					
Browndell	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.16	Slope	1.00
Kitterll	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.16	Slope	1.00
BrG:					
Browndell	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Kitterll	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.16	Slope	1.00
				Seepage	0.50
BuB:					
Burkeville	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.32
BuD:					
Burkeville	95	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.16		
CgA:					
Chambliss	88	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	0.32
CiA:					
Choates	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slow water movement	0.50	Depth to saturated zone	1.00
				Slope	0.08
CkB:					
Colita	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
		Depth to bedrock	0.47	Depth to soft bedrock	0.05

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
CkC:					
Colita	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	0.73	Seepage	1.00
		Slow water movement	0.50	Depth to soft bedrock	0.32
Laska	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.22		
CmB:					
Colmesneil	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	0.32
CoB:					
Corrigan	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Depth to bedrock	1.00	Slope	0.08
CoE:					
Corrigan	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to saturated zone	0.94
		Slope	0.16		
CyA:					
Cypress	95	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
DoB:					
Doucette	90	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
				Slope	0.08

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
EtA:					
Estes	55	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Angelina	35	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
EvA:					
Evadale	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.82
GPI:					
Pits	100	Not rated		Not rated	
HaA:					
Hainesville	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.40		
HhD:					
Hillister	90	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
		Slope	0.16	Slope	1.00
IbA:					
Iulus	51	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	0.50
		Slow water movement	0.50	Depth to saturated zone	0.04
Bleakwood	44	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
JhA:					
Jayhawker	95	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
KeB:					
Kenefick	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.68
KfA:					
Kenefick	55	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
Caneyhead	30	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
KgA:					
Kirbyville	53	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.02
Niwana	34	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
		Depth to saturated zone	0.40		
KiB:					
Kirbyville	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.32
KnB:					
Kountze	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.98	Seepage	1.00

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
KoA:					
Koury	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00		
Lb:					
Laneville	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Seepage	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	0.44
LcB:					
Laska	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
LvA:					
Lelavale	95	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
MpA:					
Mollville	50	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
		Seepage, bottom layer	1.00		
Besner	35	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
		Depth to saturated zone	0.40		
NhB:					
Newco	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.08
NhD:					
Newco	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.16		

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
NoA:					
Nona	70	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.32
Dallardsville	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.32
OiA:					
Olive	65	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.01
Dallardsville	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.32
OtB:					
Otanya	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.68
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
OtC:					
Otanya	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.32
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
				Seepage	0.02
Oz:					
Ozias	55	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Pophers	35	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
PkA:					
Plank----------------	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
PmB:					
Pinetucky------------	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.08
RaB:					
Rayburn--------------	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to soft bedrock	0.26
		Depth to bedrock	0.69	Slope	0.08
RaD:					
Rayburn--------------	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to soft bedrock	0.26
		Depth to bedrock	0.69		
		Slope	0.16		
ReB:					
Redco----------------	90	Very limited		Not limited	
		Slow water movement	1.00		
ReD:					
Redco----------------	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.16		
RrB:					
Rogan----------------	90	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
				Slope	0.08
RrF:					
Rogan----------------	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
				Slope	0.08

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SeD:					
Sawlit	45	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	0.04
Sawtown	35	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Depth to saturated zone	1.00		
ShB:					
Shankler	80	Somewhat limited		Very limited	
		Slow water movement	0.50	Seepage	1.00
				Slope	0.68
ShD:					
Shankler	85	Somewhat limited		Very limited	
		Slope	0.63	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
SiC:					
Silsbee	90	Very limited		Very limited	
		Slow water movement	0.99	Seepage	0.99
				Slope	0.08
SiD:					
Silsbee	95	Very limited		Very limited	
		Slow water movement	0.99	Slope	1.00
				Seepage	0.99
SnA:					
Sorter	61	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.50
Dallardsville	33	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.32

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SsA:					
Spurger	50	Very limited		Not limited	
		Slow water movement	1.00		
		Seepage, bottom layer	1.00		
		Depth to saturated zone	0.08		
Caneyhead	30	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
StM:					
Stringtown	65	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.16	Seepage	0.50
Bonwier	25	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Slope	0.16	Slope	1.00
TuB:					
Turkey	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
TyA:					
Tyden	60	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Babco	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
UrB:					
Urland	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Seepage	0.50
				Slope	0.08

Table 21.--Septic Tank Absorption Fields and Sewage Lagoons--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
VoA:					
Votaw	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Flooding	0.40	Flooding	0.40
W:					
Water	100	Not rated		Not rated	
WbA:					
Waller	59	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
Dallardsville	36	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.32
WcB:					
Wiergate	90	Very limited		Not limited	
		Slow water movement	1.00		
WnB:					
Woodville	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.08
WnD:					
Woodville	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.16		
WnS:					
Woodville	50	Very limited		Not limited	
		Slow water movement	1.00		
Sawlit	35	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.04

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaB:							
Alazan	95	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
BcA:							
Belrose	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Depth to saturated zone	0.38
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
BiB:							
Belrose	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Depth to saturated zone	0.38
		Too sandy	0.50				
BoB:							
Boykin	85	Not limited		Very limited		Not limited	
				Seepage	1.00		
BrC:							
Browndell	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Kitterll	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.50			Too sandy	0.50
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.16	Too clayey	1.00
		Slope	0.16			Hard to compact	1.00
						Slope	0.16
Kitterll	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	0.16

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrG:							
Browndell-----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Kitterll------------	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16	Slope	0.16
BuB:							
Burkeville----------	95	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
BuD:							
Burkeville----------	95	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.16	Too clayey	1.00
		Slope	0.16			Hard to compact	1.00
						Slope	0.16
CgA:							
Chambliss-----------	88	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
CiA:							
Choates-------------	90	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
				Seepage	1.00		
CkB:							
Colita--------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	0.50
				Depth to bedrock	0.05	Depth to bedrock	0.05
CkC:							
Colita--------------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	0.50
				Depth to bedrock	0.32	Depth to bedrock	0.32
Laska---------------	35	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.68
		Depth to bedrock	1.00	Seepage	1.00	Seepage	0.50
		Seepage, bottom layer	1.00				

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
CmB:							
Colmesneil	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
CoB:							
Corrigan	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Depth to bedrock	1.00	Depth to saturated zone	0.94	Hard to compact	1.00
		Too clayey	1.00			Depth to bedrock	1.00
						Depth to saturated zone	0.96
CoE:							
Corrigan	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Depth to bedrock	1.00	Depth to saturated zone	0.94	Hard to compact	1.00
		Too clayey	1.00	Slope	0.16	Depth to bedrock	1.00
		Slope	0.16			Depth to saturated zone	0.96
						Slope	0.16
CyA:							
Cypress	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
DoB:							
Doucette	90	Not limited		Very limited		Not limited	
				Seepage	1.00		
EtA:							
Estes	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
Angelina	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
EvA:							
Evadale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Excess sodium	1.00			Sodium content	1.00
		Too clayey	0.50			Too clayey	0.50
GPI:							
Pits	100	Not rated		Very limited		Not rated	
				Seepage	1.00		
HaA:							
Hainesville	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50				
HhD:							
Hillister	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.16	Seepage	1.00	Slope	0.16
				Slope	0.16		
IbA:							
Iulus	51	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.24
		Depth to saturated zone	0.68	Depth to saturated zone	0.04		
Bleakwood	44	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
JhA:							
Jayhawker	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	1.00		
KeB:							
Kenefick	85	Not limited		Not limited		Not limited	
KfA:							
Kenefick	55	Somewhat limited		Very limited		Somewhat limited	
		Too clayey	0.50	Seepage	1.00	Too clayey	0.50
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
KgA:							
Kirbyville----------	53	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
Niwana--------------	34	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
KiB:							
Kirbyville----------	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.75	Depth to saturated zone	0.86
KnB:							
Kountze-------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
KoA:							
Koury---------------	85	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
Lb:							
Laneville-----------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too clayey	1.00
		Too clayey	1.00	Depth to saturated zone	0.44	Hard to compact	1.00
		Depth to saturated zone	0.95			Depth to saturated zone	0.68
LcB:							
Laska---------------	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.68
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
LvA:							
Lelavale------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
MpA:							
Mollville-----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00				
Besner--------------	35	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
				Seepage	1.00		

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
NhB:							
Newco	85	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
NhD:							
Newco	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.16	Too clayey	1.00
		Slope	0.16			Hard to compact	1.00
						Slope	0.16
NoA:							
Nona	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dallardsville	20	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
OiA:							
Olive	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	1.00				
Dallardsville	25	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
OtB:							
Otanya	90	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
OtC:							
Otanya	95	Very limited		Very limited		Not limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Oz:							
Ozias	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
Pophers	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PkA:							
Plank	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PmB:							
Pinetucky	80	Not limited		Not limited		Not limited	
RaB:							
Rayburn	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.26	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.26
RaD:							
Rayburn	90	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.26	Too clayey	1.00
		Too clayey	1.00	Slope	0.16	Hard to compact	1.00
		Slope	0.16			Depth to bedrock	0.26
		Depth to saturated zone	0.09			Slope	0.16
ReB:							
Redco	90	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
ReD:							
Redco	90	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.16	Too clayey	1.00
		Slope	0.16			Hard to compact	1.00
						Slope	0.16
RrB:							
Rogan	90	Not limited		Very limited		Not limited	
				Seepage	1.00		
RrF:							
Rogan	90	Not limited		Not limited		Not limited	
SeD:							
Sawlit	45	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Depth to saturated zone	0.04	Hard to compact	1.00
		Depth to saturated zone	0.68			Depth to saturated zone	0.24
Sawtown	35	Very limited		Not limited		Very limited	
		Too clayey	1.00			Hard to compact	1.00
		Depth to saturated zone	0.02				

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
ShB:							
Shankler	80	Somewhat limited		Very limited		Very limited	
		Too sandy	0.50	Seepage	1.00	Seepage	1.00
						Too sandy	0.50
ShD:							
Shankler	85	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Seepage	1.00	Seepage	1.00
		Too sandy	0.50	Slope	0.63	Slope	0.63
						Too sandy	0.50
SiC:							
Silsbee	90	Not limited		Not limited		Not limited	
SiD:							
Silsbee	95	Not limited		Not limited		Not limited	
SnA:							
Sorter	61	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Dallardsville	33	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
SsA:							
Spurger	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
		Seepage, bottom layer	1.00				
Caneyhead	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
StM:							
Stringtown	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.16	Slope	0.16	Slope	0.16
Bonwier	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Hard to compact	1.00
						Slope	0.16
TuB:							
Turkey	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TyA:							
Tyden	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Babco	25	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
UrB:							
Urland	80	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
VoA:							
Votaw	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Seepage	1.00	Depth to saturated zone	0.65
		Seepage, bottom layer	1.00	Flooding	0.40	Seepage	0.31
		Flooding	0.40				
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
Dallardsville	36	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
WcB:							
Wiergate	90	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
WnB:							
Woodville	80	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
WnD:							
Woodville	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.16	Too clayey	1.00
		Slope	0.16			Hard to compact	1.00
						Slope	0.16

Table 22.--Trench Sanitary Landfill, Area Landfills, and Daily Cover for Landfill--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
WnS:							
Woodville-----------	50	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Sawlit--------------	35	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.68	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50	Depth to saturated zone	0.04	Depth to saturated zone	0.24

Table 23.--Potential Source of Gravel and Sand

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
AaB:					
Alazan	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BcA:					
Belrose	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Caneyhead	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BiB:					
Belrose	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BoB:					
Boykin	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.10
BrC:					
Browndell	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kitterll	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.10
BrD:					
Browndell	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kitterll	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.01

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
BrG:					
Browndell	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kitterll	40	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01
BuB:					
Burkeville	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BuD:					
Burkeville	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CgA:					
Chambliss	88	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.09
CiA:					
Choates	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.10
CkB:					
Colita	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CkC:					
Colita	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Laska	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CmB:					
Colmesneil	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.05
CoB:					
Corrigan	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CoE:					
Corrigan	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
CyA:					
Cypress	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DoB:					
Doucette	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.10
EtA:					
Estes	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Angelina	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EvA:					
Evadale	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GPI:					
Pits	100	Not rated		Not rated	
HaA:					
Hainesville	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.06
HhD:					
Hillister	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.10
IbA:					
Iulus	51	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Bleakwood	44	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
JhA:					
Jayhawker	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KeB:					
Kenefick	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
KfA:					
Kenefick	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Caneyhead	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KgA:					
Kirbyville	53	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Niwana	34	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KiB:					
Kirbyville	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KnB:					
Kountze	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KoA:					
Koury	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lb:					
Laneville	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LcB:					
Laska	80	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
LvA:					
Lelavale	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MpA:					
Mollville	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
Besner	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
NhB:					
Newco	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NhD:					
Newco	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NoA:					
Nona	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Dallardsville	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OiA:					
Olive	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Dallardsville	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OtB:					
Otanya	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
OtC:					
Otanya	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Oz:					
Ozias	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pophers	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
PkA:					
Plank	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
PmB:					
Pinetucky	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
RaB:					
Rayburn	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RaD:					
Rayburn	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ReB:					
Redco	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ReD:					
Redco	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RrB:					
Rogan	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RrF:					
Rogan	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SeD:					
Sawlit	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sawtown	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ShB:					
Shankler	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.10
ShD:					
Shankler	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.10
SiC:					
Silsbee	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.01
SiD:					
Silsbee	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.01

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
SnA:					
Sorter	61	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Dallardsville	33	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SsA:					
Spurger	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
Caneyhead	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
StM:					
Stringtown	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bonwier	25	Not rated		Not rated	
TuB:					
Turkey	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.73
		Thickest layer	0.00	Bottom layer	0.77
TyA:					
Tyden	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Babco	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UrB:					
Urland	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
VoA:					
Votaw	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.22
		Thickest layer	0.00	Bottom layer	0.43
W:					
Water	100	Not rated		Not rated	

Table 23.--Potential Source of Gravel and Sand--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Potential source of gravel: Value	Potential source of sand: Rating class	Potential source of sand: Value
WbA:					
Waller	59	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Dallardsville	36	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
WcB:					
Wiergate	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
WnB:					
Woodville	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
WnD:					
Woodville	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
WnS:					
Woodville	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sawlit	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
AaB:							
Alazan	95	Not rated		Fair		Not rated	
				Wetness depth	0.53		
BcA:							
Belrose	55	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness depth	0.93	Too sandy	0.13
		Too acid	0.12			Wetness depth	0.93
		Too sandy	0.13			Too acid	0.98
		Organic matter content low	0.14				
		Water erosion	0.90				
Caneyhead	30	Fair		Poor		Poor	
		Too acid	0.05	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.06	Low strength	0.00	Too acid	0.68
		Organic matter content low	0.54				
BiB:							
Belrose	85	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness depth	0.93	Too sandy	0.11
		Organic matter content low	0.11			Wetness depth	0.93
		Too sandy	0.11			Too acid	0.98
		Too acid	0.12				
		Water erosion	0.90				
BoB:							
Boykin	85	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00				
		Organic matter content low	0.18				
		Too acid	0.54				
BrC:							
Browndell	55	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12	Too acid	0.98
		Too acid	0.54				
		Organic matter content low	0.75				
Kitterll	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Too sandy	0.22
		Too sandy	0.22				
		Too acid	0.84				
		Water erosion	0.99				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
BrD:							
Browndell	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Slope	0.84
		Too acid	0.54	Shrink-swell	0.12		
		Organic matter content low	0.88				
Kitterll	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Slope	0.84
		Too acid	0.84				
		Water erosion	0.99				
BrG:							
Browndell	45	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Low strength	0.00	Too clayey	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.54	Shrink-swell	0.12	Too acid	0.98
		Organic matter content low	0.75				
Kitterll	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Slope	0.84
		Too acid	0.84				
		Water erosion	0.99				
BuB:							
Burkeville	95	Poor		Poor		Poor	
		Too clayey	0.00	Shrink-swell	0.00	Too clayey	0.00
		Organic matter content low	0.60	Low strength	0.00		
BuD:							
Burkeville	95	Poor		Poor		Poor	
		Too clayey	0.00	Shrink-swell	0.00	Too clayey	0.00
		Organic matter content low	0.60	Low strength	0.00	Slope	0.84
CgA:							
Chambliss	88	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.88
		Organic matter content low	0.18				
		Too acid	0.50				
CiA:							
Choates	90	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness depth	0.53	Too acid	0.50
		Organic matter content low	0.18			Wetness depth	0.53
		Too acid	0.50				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CkB:							
Colita	85	Fair		Fair		Fair	
		Too acid	0.54	Wetness depth	0.04	Wetness depth	0.04
		Water erosion	0.99	Depth to bedrock	0.95	Too acid	0.98
CkC:							
Colita	45	Fair		Fair		Fair	
		Too acid	0.54	Wetness depth	0.04	Wetness depth	0.04
		Organic matter content low	0.75	Depth to bedrock	0.68	Too acid	0.98
		Water erosion	0.99				
Laska	35	Fair		Fair		Fair	
		Too acid	0.20	Wetness depth	0.76	Wetness depth	0.76
		Organic matter content low	0.68			Too acid	0.76
CmB:							
Colmesneil	90	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.45
		Too sandy	0.45			Too acid	0.98
		Too acid	0.54				
		Organic matter content low	0.60				
CoB:							
Corrigan	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.50	Depth to bedrock	0.00	Wetness depth	0.29
		Droughty	0.74	Shrink-swell	0.12	Too acid	0.59
		Depth to bedrock	0.79	Wetness depth	0.29	Depth to bedrock	0.79
		Organic matter content low	0.88				
		Water erosion	0.90				
CoE:							
Corrigan	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.50	Depth to bedrock	0.00	Wetness depth	0.29
		Droughty	0.74	Shrink-swell	0.12	Too acid	0.59
		Depth to bedrock	0.79	Wetness depth	0.29	Depth to bedrock	0.79
		Organic matter content low	0.88			Slope	0.84
		Water erosion	0.90				
CyA:							
Cypress	95	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.50	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.88	Shrink-swell	0.87	Too acid	0.32

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
DoB:							
Doucette	90	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00				
		Organic matter content low	0.18				
		Too acid	0.50				
EtA:							
Estes	55	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
		Too acid	0.20	Low strength	0.00	Wetness depth	0.00
				Shrink-swell	0.12	Too acid	0.76
Angelina	35	Poor		Poor		Poor	
		Too acid	0.00	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.88	Low strength	0.00	Too acid	0.68
EvA:							
Evadale	85	Poor		Poor		Poor	
		Too acid	0.00	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.06	Low strength	0.00	Sodium content	0.02
		Organic matter content low	0.18	Shrink-swell	0.32	Too clayey	0.60
		Too clayey	0.92			Too acid	0.76
GPI:							
Pits	100	Not rated		Not rated		Not rated	
HaA:							
Hainesville	85	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.50
		Too sandy	0.50			Too acid	0.98
		Too acid	0.54				
		Organic matter content low	0.88				
HhD:							
Hillister	90	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.09
		Too acid	0.08			Slope	0.84
		Too sandy	0.09			Too acid	0.98
		Organic matter content low	0.18			Rock fragments	0.99
		Droughty	0.85				
IbA:							
Iulus	51	Fair		Fair		Fair	
		Too acid	0.08	Wetness depth	0.98	Too acid	0.50
		Organic matter content low	0.60			Rock fragments	0.95
						Wetness depth	0.98
Bleakwood	44	Fair		Poor		Poor	
		Too acid	0.32	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.68	Low strength	0.22	Too acid	0.88

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
JhA:							
Jayhawker-----------	95	Fair		Poor		Poor	
		Too acid	0.03	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.14			Too acid	0.59
		Water erosion	0.68				
KeB:							
Kenefick------------	85	Fair		Good		Good	
		Organic matter content low	0.05				
		Too acid	0.20				
		Water erosion	0.68				
KfA:							
Kenefick------------	55	Fair		Fair		Good	
		Too acid	0.54	Low strength	0.22		
		Organic matter content low	0.60	Shrink-swell	0.99		
Caneyhead-----------	30	Fair		Poor		Poor	
		Too acid	0.05	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.06	Low strength	0.00	Too acid	0.68
		Organic matter content low	0.54				
KgA:							
Kirbyville----------	53	Fair		Fair		Fair	
		Too acid	0.08	Wetness depth	0.53	Wetness depth	0.53
		Organic matter content low	0.12			Too acid	0.59
		Water erosion	0.37				
Niwana--------------	34	Fair		Good		Fair	
		Organic matter content low	0.03			Too acid	0.99
		Too acid	0.50				
KiB:							
Kirbyville----------	85	Fair		Fair		Fair	
		Organic matter content low	0.16	Wetness depth	0.53	Wetness depth	0.53
		Too acid	0.39			Too acid	0.95
		Water erosion	0.68				
KnB:							
Kountze-------------	85	Fair		Fair		Fair	
		Organic matter content low	0.11	Wetness depth	0.14	Wetness depth	0.14
		Too acid	0.20			Too acid	0.76
		Water erosion	0.37				
KoA:							
Koury---------------	85	Fair		Good		Fair	
		Too acid	0.03			Too acid	0.50
		Water erosion	0.68				
		Organic matter content low	0.88				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Lb:							
Laneville-----------	85	Not rated		Poor		Not rated	
				Low strength	0.00		
				Wetness depth	0.76		
				Shrink-swell	0.76		
LcB:							
Laska---------------	80	Fair		Fair		Fair	
		Too acid	0.20	Wetness depth	0.76	Wetness depth	0.76
		Organic matter content low	0.68			Too acid	0.76
LvA:							
Lelavale------------	95	Fair		Poor		Poor	
		Too acid	0.01	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.27	Low strength	0.00	Too acid	0.41
		Sodium content	0.78			Sodium content	0.98
		Water erosion	0.90				
MpA:							
Mollville-----------	50	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.54	Low strength	0.78	Sodium content	0.90
		Sodium content	0.90	Shrink-swell	0.90	Too acid	0.98
		Water erosion	0.99				
Besner--------------	35	Fair		Good		Good	
		Too acid	0.68				
		Organic matter content low	0.88				
NhB:							
Newco---------------	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.18	Shrink-swell	0.56	Too acid	0.88
		Too acid	0.50				
		Water erosion	0.99				
NhD:							
Newco---------------	85	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.79	Too clayey	0.00
		Organic matter content low	0.18			Slope	0.84
		Too acid	0.50			Too acid	0.88
		Water erosion	0.99				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
NoA:							
Nona	70	Fair		Poor		Poor	
		Water erosion	0.06	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.16	Low strength	0.00	Too acid	0.82
		Too acid	0.50	Shrink-swell	0.82	Sodium content	0.90
		Sodium content	0.90				
Dallardsville	20	Fair		Good		Fair	
		Water erosion	0.06			Too acid	0.02
		Organic matter content low	0.29			Too sandy	0.99
		Too acid	0.50				
		Too sandy	0.99				
OiA:							
Olive	65	Fair		Poor		Poor	
		Organic matter content low	0.18	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.37			Too acid	0.02
		Too acid	0.50				
Dallardsville	25	Fair		Good		Fair	
		Water erosion	0.06			Too acid	0.02
		Organic matter content low	0.29			Too sandy	0.49
		Too sandy	0.49				
		Too acid	0.50				
OtB:							
Otanya	90	Fair		Good		Fair	
		Organic matter content low	0.08			Too acid	0.76
		Too acid	0.20				
		Water erosion	0.68				
OtC:							
Otanya	95	Fair		Good		Fair	
		Organic matter content low	0.08			Too acid	0.76
		Too acid	0.20				
		Water erosion	0.68				
Oz:							
Ozias	55	Not rated		Poor		Not rated	
				Wetness depth	0.00		
				Low strength	0.00		
				Shrink-swell	0.12		
Pophers	35	Fair		Poor		Fair	
		Too acid	0.50	Low strength	0.00	Wetness depth	0.14
		Organic matter content low	0.68	Wetness depth	0.14	Too acid	0.50
		Sodium content	0.78	Shrink-swell	0.87	Sodium content	0.78
		Water erosion	0.99				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
PkA:							
Plank	95	Fair		Poor		Poor	
		Organic matter content low	0.03	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.50			Too acid	0.59
		Water erosion	0.90			Sodium content	0.90
		Sodium content	0.90				
PmB:							
Pinetucky	80	Fair		Good		Fair	
		Organic matter content low	0.18			Too acid	0.88
		Too acid	0.50				
RaB:							
Rayburn	80	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
		Organic matter content low	0.18	Low strength	0.00	Wetness depth	0.00
		Too acid	0.50	Shrink-swell	0.12	Too acid	0.50
		Water erosion	0.90	Depth to bedrock	0.74		
RaD:							
Rayburn	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.18	Shrink-swell	0.12	Too acid	0.50
		Too acid	0.50	Depth to bedrock	0.74	Slope	0.84
		Water erosion	0.90				
ReB:							
Redco	90	Poor		Poor		Poor	
		Too clayey	0.00	Shrink-swell	0.00	Too clayey	0.00
		Too acid	0.54	Low strength	0.00		
		Organic matter content low	0.60				
ReD:							
Redco	90	Poor		Poor		Poor	
		Too clayey	0.00	Shrink-swell	0.00	Too clayey	0.00
		Too acid	0.54	Low strength	0.00	Slope	0.84
		Organic matter content low	0.60			Too acid	0.98
RrB:							
Rogan	90	Fair		Good		Poor	
		Organic matter content low	0.18			Rock fragments	0.00
		Too acid	0.50				
RrF:							
Rogan	90	Fair		Good		Fair	
		Organic matter content low	0.18			Rock fragments	0.03
		Too acid	0.50			Too acid	0.88

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
SeD:							
Sawlit--------------	45	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Wetness depth	0.98
		Organic matter content low	0.75	Shrink-swell	0.87	Too acid	0.98
		Water erosion	0.99	Wetness depth	0.98		
Sawtown-------------	35	Fair		Poor		Fair	
		Too acid	0.32	Low strength	0.00	Too acid	0.98
		Organic matter content low	0.60	Shrink-swell	0.87		
		Water erosion	0.99				
ShB:							
Shankler------------	80	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00				
		Too acid	0.68				
		Organic matter content low	0.88				
ShD:							
Shankler------------	85	Poor		Good		Poor	
		Wind erosion	0.00			Too sandy	0.00
		Too sandy	0.00			Slope	0.37
		Too acid	0.68				
		Organic matter content low	0.88				
SiC:							
Silsbee-------------	90	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.08				
		Organic matter content low	0.29				
		Water erosion	0.90				
SiD:							
Silsbee-------------	95	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.98
		Too acid	0.08				
		Organic matter content low	0.29				
		Water erosion	0.90				
SnA:							
Sorter--------------	61	Poor		Poor		Poor	
		Too acid	0.00	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.01			Too acid	0.59
		Water erosion	0.06			Sodium content	0.90
		Sodium content	0.90				
Dallardsville-------	33	Fair		Good		Fair	
		Organic matter content low	0.04			Too acid	0.02
		Water erosion	0.06				
		Too acid	0.50				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
SsA:							
Spurger	50	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Shrink-swell	0.00	Too acid	0.59
		Organic matter content low	0.24				
		Water erosion	0.99				
Caneyhead	30	Fair		Poor		Poor	
		Too acid	0.05	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.37			Too acid	0.68
		Organic matter content low	0.54				
StM:							
Stringtown	65	Fair		Good		Fair	
		Organic matter content low	0.24			Slope	0.84
		Too acid	0.54			Rock fragments	0.88
						Too acid	0.98
Bonwier	25	Not rated		Good		Not rated	
TuB:							
Turkey	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Sodium content	0.78
		Droughty	0.01			Too acid	0.88
		Organic matter content low	0.02				
		Water erosion	0.06				
		Too acid	0.50				
		Sodium content	0.60				
TyA:							
Tyden	60	Poor		Poor		Poor	
		Too acid	0.00	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.01			Too acid	0.18
		Water erosion	0.68				
Babco	25	Poor		Fair		Fair	
		Wind erosion	0.00	Wetness depth	0.53	Wetness depth	0.53
		Too acid	0.00			Too acid	0.68
		Organic matter content low	0.01				
		Water erosion	0.90				
UrB:							
Urland	80	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.87	Too clayey	0.00
		Too acid	0.50			Too acid	0.88
		Organic matter content low	0.60				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
VoA:							
Votaw	95	Poor		Fair		Poor	
		Too sandy	0.00	Wetness depth	0.78	Too sandy	0.00
		Wind erosion	0.00			Wetness depth	0.78
		Organic matter content low	0.01			Sodium content	0.90
		Too acid	0.32				
		Sodium content	0.90				
		Droughty	0.98				
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Fair		Poor		Poor	
		Organic matter content low	0.03	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.37	Low strength	0.22	Too acid	0.92
		Too acid	0.50				
Dallardsville	36	Fair		Good		Fair	
		Water erosion	0.06			Too acid	0.02
		Organic matter content low	0.10				
		Too acid	0.50				
WcB:							
Wiergate	90	Poor		Poor		Poor	
		Too clayey	0.00	Shrink-swell	0.00	Too clayey	0.00
		Organic matter content low	0.24	Low strength	0.00		
WnB:							
Woodville	80	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.18	Shrink-swell	0.12		
		Too acid	0.50				
		Water erosion	0.90				
WnD:							
Woodville	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.18	Shrink-swell	0.12	Slope	0.84
		Too acid	0.32			Too acid	0.88
		Water erosion	0.90				

Table 24.--Potential Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
WnS:							
Woodville	50	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.54	Shrink-swell	0.26	Too acid	0.98
		Organic matter content low	0.60				
		Water erosion	0.99				
Sawlit	35	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Wetness depth	0.98
		Organic matter content low	0.75	Wetness depth	0.98	Too acid	0.98
		Water erosion	0.99	Shrink-swell	0.99		

Table 25.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
AaB:							
Alazan	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.99	Slow refill	0.30
				Piping	0.89	Cutbanks cave	0.10
						Depth to saturated zone	0.01
BcA:							
Belrose	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.80	Depth to saturated zone	0.09
Caneyhead	30	Not limited		Very limited		Somewhat limited	
				Ponding	1.00	Slow refill	0.99
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.99		
BiB:							
Belrose	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.80	Cutbanks cave	1.00
						Depth to saturated zone	0.09
BoB:							
Boykin	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
BrC:							
Browndell	55	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.69	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Hard to pack	0.59		
		Seepage	0.02				
Kitterll	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.69	Thin layer	1.00	Depth to water	1.00
		Seepage	0.02	Piping	1.00		
				Seepage	0.10		
BrD:							
Browndell	55	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.58	Hard to pack	0.03		
		Seepage	0.02				
Kitterll	35	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.90	Piping	1.00		
				Seepage	0.01		

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
BrG:							
Browndell	45	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.66	Hard to pack	0.63		
		Seepage	0.02				
Kitterll	40	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.74	Piping	1.00		
		Seepage	0.02	Seepage	0.01		
BuB:							
Burkeville	95	Somewhat limited		Very limited		Very limited	
		Slope	0.08	Hard to pack	1.00	Depth to water	1.00
BuD:							
Burkeville	95	Very limited		Very limited		Very limited	
		Slope	1.00	Hard to pack	1.00	Depth to water	1.00
CgA:							
Chambliss	88	Very limited		Not rated		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.08				
CiA:							
Choates	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.10	Slow refill	0.30
						Depth to saturated zone	0.01
CkB:							
Colita	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Depth to bedrock	0.01	Piping	1.00		
				Thin layer	0.01		
CkC:							
Colita	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Depth to bedrock	0.01	Piping	1.00		
				Thin layer	0.08		
Laska	35	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.95	Cutbanks cave	0.10
						Depth to saturated zone	0.02
CmB:							
Colmesneil	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.05	Depth to water	1.00
		Slope	0.08				

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CoB:							
Corrigan------------	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.06	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.02	Hard to pack	0.80		
				Thin layer	0.77		
CoE:							
Corrigan------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00	Depth to water	1.00
		Depth to bedrock	0.06	Hard to pack	0.80		
		Seepage	0.02	Thin layer	0.77		
CyA:							
Cypress-------------	95	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.61		
DoB:							
Doucette------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
EtA:							
Estes---------------	55	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00
Angelina------------	35	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
EvA:							
Evadale-------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.89	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	1.00		
GPI:							
Pits----------------	100	Very limited		Not rated		Not rated	
		Seepage	1.00				
HaA:							
Hainesville---------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
HhD:							
Hillister-----------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.11	Depth to water	1.00
		Slope	1.00	Seepage	0.10		

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
IbA:							
Iulus	51	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.68	Depth to water	1.00
				Seepage	0.04		
Bleakwood	44	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Piping	0.27	Cutbanks cave	0.10
JhA:							
Jayhawker	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
KeB:							
Kenefick	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.81	Piping	1.00	Depth to water	1.00
						Slow refill	0.81
KfA:							
Kenefick	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
						Slow refill	0.30
Caneyhead	30	Not limited		Very limited		Somewhat limited	
				Ponding	1.00	Slow refill	0.99
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.99		
KgA:							
Kirbyville	53	Not limited		Very limited		Very limited	
				Piping	1.00	Depth to water	1.00
				Depth to saturated zone	0.99		
Niwana	34	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
						Slow refill	0.30
KiB:							
Kirbyville	85	Not limited		Very limited		Very limited	
				Piping	1.00	Depth to water	1.00
				Depth to saturated zone	0.99		
KnB:							
Kountze	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.81	Depth to saturated zone	1.00	Slow refill	0.19
				Piping	1.00	Cutbanks cave	0.10

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KoA:							
Koury	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.03	Piping	1.00	Depth to water	1.00
Lb:							
Laneville	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.95	Depth to water	1.00
LcB:							
Laska	80	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	0.95	Cutbanks cave	0.10
				Seepage	0.01	Depth to saturated zone	0.02
LvA:							
Lelavale	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.01	Ponding	1.00	Slow refill	0.95
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.83		
MpA:							
Mollville	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Piping	1.00		
				Seepage	0.06		
Besner	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
						Slow refill	0.30
NhB:							
Newco	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.02	Piping	0.12	Depth to water	1.00
NhD:							
Newco	85	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.02				
NoA:							
Nona	70	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.19
				Piping	1.00	Cutbanks cave	0.10
Dallardsville	20	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Piping	1.00	Slow refill	0.81
				Depth to saturated zone	0.46	Depth to saturated zone	0.24
						Cutbanks cave	0.10

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
OiA:							
Olive	65	Not limited		Very limited		Somewhat limited	
				Ponding	1.00	Slow refill	0.89
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
Dallardsville	25	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Piping	1.00	Slow refill	0.81
				Depth to saturated zone	0.46	Depth to saturated zone	0.24
						Cutbanks cave	0.10
OtB:							
Otanya	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.05	Piping	1.00	Depth to saturated zone	0.96
						Slow refill	0.95
						Cutbanks cave	0.10
OtC:							
Otanya	95	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.08	Piping	1.00	Depth to saturated zone	0.96
		Seepage	0.05			Slow refill	0.95
						Cutbanks cave	0.10
Oz:							
Ozias	55	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00
				Hard to pack	1.00		
				Salinity	0.03		
Pophers	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.03	Depth to saturated zone	1.00	Slow refill	0.97
				Piping	0.36	Cutbanks cave	0.10
PkA:							
Plank	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.03	Depth to saturated zone	1.00	Slow refill	0.30
				Piping	1.00	Cutbanks cave	0.10
PmB:							
Pinetucky	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.03	Piping	0.84	Depth to water	1.00
RaB:							
Rayburn	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.02	Depth to saturated zone	1.00	Depth to water	1.00
		Depth to bedrock	0.01	Hard to pack	0.80		
				Thin layer	0.06		

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaD:							
Rayburn	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.83	Depth to water	1.00
		Seepage	0.02	Depth to saturated zone	0.09		
		Depth to bedrock	0.01	Thin layer	0.06		
ReB:							
Redco	90	Not limited		Very limited		Very limited	
				Hard to pack	1.00	Depth to water	1.00
ReD:							
Redco	90	Very limited		Very limited		Very limited	
		Slope	1.00	Hard to pack	1.00	Depth to water	1.00
RrB:							
Rogan	90	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
RrF:							
Rogan	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.75	Depth to water	1.00
SeD:							
Sawlit	45	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.68	Depth to water	1.00
				Piping	0.01		
Sawtown	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.02	Depth to water	1.00
				Piping	0.01		
ShB:							
Shankler	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
		Slope	0.32				
ShD:							
Shankler	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
		Slope	1.00				
SiC:							
Silsbee	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.11	Piping	1.00	Depth to water	1.00
				Seepage	0.01		
SiD:							
Silsbee	95	Somewhat limited		Very limited		Very limited	
		Slope	0.92	Piping	1.00	Depth to water	1.00
		Seepage	0.11	Seepage	0.01		

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
SnA:							
Sorter	61	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
Dallardsville	33	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Piping	1.00	Slow refill	0.97
				Depth to saturated zone	0.46	Depth to saturated zone	0.24
						Cutbanks cave	0.10
SsA:							
Spurger	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.03	Hard to pack	0.18	Depth to water	1.00
				Seepage	0.06		
Caneyhead	30	Not limited		Very limited		Somewhat limited	
				Ponding	1.00	Slow refill	0.99
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.97		
StM:							
Stringtown	65	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Bonwier	25	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.03				
TuB:							
Turkey	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.77	Depth to water	1.00
				Piping	0.40		
TyA:							
Tyden	60	Not limited		Very limited		Somewhat limited	
				Ponding	1.00	Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
Babco	25	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	0.99	Slow refill	0.99
				Seepage	0.01	Cutbanks cave	0.10
						Depth to saturated zone	0.01
UrB:							
Urland	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.64	Depth to water	1.00

Table 25.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
VoA:							
Votaw	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.94	Cutbanks cave	1.00
				Seepage	0.43	Depth to saturated zone	0.02
				Piping	0.10		
W:							
Water	100	Not rated		Not rated		Not rated	
WbA:							
Waller	59	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.30
				Piping	1.00	Cutbanks cave	0.10
Dallardsville	36	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.57	Piping	1.00	Slow refill	0.97
				Depth to saturated zone	0.46	Depth to saturated zone	0.24
						Cutbanks cave	0.10
WcB:							
Wiergate	90	Not limited		Very limited		Very limited	
				Hard to pack	1.00	Depth to water	1.00
WnB:							
Woodville	80	Not limited		Somewhat limited		Very limited	
				Hard to pack	0.52	Depth to water	1.00
WnD:							
Woodville	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.94	Depth to water	1.00
WnS:							
Woodville	50	Not limited		Somewhat limited		Very limited	
				Piping	0.06	Depth to water	1.00
Sawlit	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.68	Depth to water	1.00
				Piping	0.12		

Table 26.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AaB:												
Alazan----------	0-18	Very fine sandy loam	CL-ML, SC-SM, ML	A-4	0	0	100	96-100	90-100	51-80	0-25	NP-7
	18-80	Sandy clay loam, loam	SC, CL	A-4, A-6, A-2-6	0	0	100	96-100	90-100	30-70	25-40	8-22
BcA:												
Belrose---------	0-6	Loamy very fine sand	ML, SM	A-4	0	0	100	97-100	92-100	40-65	7-12	NP-1
	6-16	Loamy very fine sand, very fine sandy loam	ML, SM	A-4	0	0	100	97-100	93-100	40-65	7-13	NP-2
	16-27	Loamy very fine sand, very fine sandy loam	ML, SM	A-4	0	0	100	97-100	94-100	40-65	9-15	NP-2
	27-42	Loamy very fine sand, very fine sandy loam	SC-SM, ML, CL-ML, SM	A-4	0	0	100	100	93-100	39-65	9-20	2-6
	42-80	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML, SC-SM, SM, CL	A-4	0	0	100	100	93-100	47-75	14-25	2-11
Caneyhead-------	0-4	Silt loam	CL-ML, ML, CL	A-4	0	0	100	99-100	98-100	55-90	12-27	1-9
	4-18	Silt loam, loam, very fine sandy loam	CL-ML, ML, CL	A-4	0	0	100	99-100	99-100	55-90	12-26	1-8
	18-29	Silt loam, clay loam, loam	CL	A-4, A-6	0	0	100	99-100	98-100	70-95	25-36	8-14
	29-63	Clay loam, clay, loam	CL	A-6, A-7-6	0	0	100	99-100	98-100	70-95	33-49	12-22
	63-80	Clay loam, loam, very fine sandy loam	CL-ML, CL	A-4, A-6	0	0	100	99-100	98-100	55-90	21-35	6-14
BiB:												
Belrose---------	0-5	Loamy very fine sand	ML, SM	A-4	0	0	100	97-100	92-100	40-65	7-12	NP-1
	5-20	Loamy very fine sand, very fine sandy loam	ML, SM	A-4	0	0	100	97-100	93-100	40-65	7-13	NP-2
	20-44	Loamy very fine sand, very fine sandy loam	ML, SM	A-4	0	0	100	97-100	94-100	40-65	9-15	NP-2
	44-63	Loamy very fine sand, very fine sandy loam	SC-SM, ML, CL-ML, SM	A-4	0	0	100	100	93-100	39-65	9-20	2-6
	63-80	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML, SC-SM, SM, CL	A-4	0	0	100	100	93-100	47-75	14-25	2-11

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BoB:												
Boykin----------	0-28	Loamy sand	SC-SM, SM	A-2-4, A-4	0	0	97-100	95-100	75-98	17-45	16-25	NP-5
	28-80	Sandy clay loam, fine sandy loam	CL, SC	A-4, A-6, A-7-6	0	0	95-100	95-100	80-98	36-55	22-45	8-30
BrC:												
Browndell-------	0-4	Loam	SC-SM, CL, CL-ML, SC	A-4, A-6	0	0-15	90-100	85-100	70-85	40-55	21-30	4-11
	4-14	Clay, silty clay	CH	A-7	0	0	85-100	85-100	80-100	75-95	52-76	30-50
	14-30	Bedrock			---	---	---	---	---	---	---	---
Kitterll--------	0-14	Loamy sand	ML, CL-ML, SC-SM, SM	A-4	0	0	90-100	90-100	60-90	36-65	16-25	NP-7
	14-20	Bedrock			---	---	---	---	---	---	---	---
BrD:												
Browndell-------	0-9	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-15	90-100	85-100	70-85	40-55	21-30	4-11
	9-17	Clay, silty clay	CH	A-7	0	0	85-100	85-100	80-100	75-95	52-76	30-50
	17-37	Bedrock			---	---	---	---	---	---	---	---
Kitterll--------	0-8	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	90-100	60-90	36-65	16-25	NP-7
	8-15	Bedrock			---	---	---	---	---	---	---	---
BrG:												
Browndell-------	0-4	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-15	90-100	85-100	70-85	40-55	21-30	4-11
	4-15	Clay, silty clay	CH	A-7	0	0	85-100	85-100	80-100	75-95	52-76	30-50
	15-30	Bedrock			---	---	---	---	---	---	---	---
Kitterll--------	0-13	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	90-100	60-90	36-65	16-25	NP-7
	13-20	Bedrock			---	---	---	---	---	---	---	---
BuB:												
Burkeville------	0-80	Clay	CH	A-7-6	0	0	98-100	98-100	90-100	80-98	55-80	35-55
BuD:												
Burkeville------	0-79	Clay	CH	A-7-6	0	0	98-100	98-100	90-100	80-98	55-80	35-55

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CgA:												
Chambliss-------	0-5	Loamy sand	SC-SM, SM, SP-SM	A-2-4	0	0	100	98-100	85-100	10-30	---	---
	5-80	Sandy loam, loamy fine sand, fine sand, loamy sand	SC-SM, SM	A-2-4, A-4	0	0	100	98-100	80-100	13-45	---	---
CiA:												
Choates---------	0-7	Loamy sand	SM, SC-SM	A-2, A-4, A-2-4	0	0	97-100	95-100	75-100	15-40	17-26	2-7
	7-22	Loamy sand	SM, SC-SM	A-2, A-4, A-2-4	0	0	97-100	95-100	75-100	15-40	16-25	2-7
	22-79	Sandy clay loam	CL, SC, SC-SM	A-4, A-6, A-7	0	0	95-100	95-100	75-100	36-55	29-45	10-19
CkB:												
Colita----------	0-25	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-100	40-60	16-25	NP-7
	25-38	Very fine sandy loam, loamy very fine sand, fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	40-65	15-25	NP-7
	38-48	Sandy clay loam, fine sandy loam	CL, ML, SC, SM	A-4, A-6	0	0	100	100	70-90	36-55	12-30	2-14
	48-56	Sandy clay loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	51-95	20-40	6-20
	56-80	Bedrock			---	---	---	---	---	---	---	---
CkC:												
Colita----------	0-6	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-100	40-60	16-25	NP-7
	6-28	Very fine sandy loam, fine sandy loam, loamy very fine sand	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	40-65	15-25	NP-7
	28-38	Sandy clay loam, fine sandy loam	CL, ML, SC, SM	A-4, A-6	0	0	100	100	70-90	36-55	12-30	2-14
	38-51	Sandy clay loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	51-95	20-40	6-20
	51-71	Bedrock			---	---	---	---	---	---	---	---
Laska-----------	0-28	Fine sandy loam	ML, SC-SM, SM, CL-ML	A-4	0	0	98-100	98-100	80-100	40-60	16-25	NP-7
	28-61	Fine sandy loam	CL	A-6, A-4	0	0	98-100	98-100	80-100	40-60	16-25	10-15
	61-69	Fine sandy loam, loamy very fine sand, loamy fine sand	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	98-100	98-100	70-100	15-60	16-25	NP-7

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
CmB:												
Colmesneil------	0-7	Loamy sand	SM, SP-SM	A-2	0	0	100	97-100	90-100	10-35	0-14	NP
	7-29	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	97-100	90-100	10-35	---	NP
	29-79	Loamy fine sand, fine sand, fine sandy loam	SM	A-4, A-2	0	0	100	97-100	90-100	25-50	16-28	NP
CoB:												
Corrigan--------	0-6	Loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-100	36-55	21-30	2-7
	6-33	Clay, silty clay	CH	A-7	0	0	100	100	90-100	65-95	52-76	30-50
	33-40	Bedrock			---	---	---	---	---	---	---	---
CoE:												
Corrigan--------	0-6	Loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-100	36-55	21-30	2-7
	6-33	Clay, silty clay	CH	A-7	0	0	100	100	90-100	65-95	52-76	30-50
	33-40	Bedrock			---	---	---	---	---	---	---	---
CyA:												
Cypress---------	0-12	Mucky clay	CH	A-7-6	0	0	100	100	90-100	75-95	56-66	33-41
	12-80	Clay, clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	90-100	75-95	43-66	21-41
DoB:												
Doucette--------	0-6	Loamy sand	SM	A-2-4, A-4	0	0	97-100	95-100	80-99	15-40	16-24	NP-4
	6-34	Loamy sand, fine sand, loamy fine sand	SM	A-2-4, A-4	0	0	97-100	95-100	80-98	15-40	16-24	NP-4
	34-79	Sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	95-100	85-98	36-55	25-39	6-18
EtA:												
Estes-----------	0-10	Clay	CH, CL	A-7-6	0	0	100	100	95-100	69-100	41-55	23-35
	10-80	Clay	CL, CH	A-7-6	0	0	100	100	95-100	69-100	41-55	23-35
Angelina--------	0-4	Fine sandy loam	SC, SC-SM, CL-ML	A-4	0	0	100	100	80-100	45-70	20-30	5-15
	4-10	Loam, sandy clay loam, clay loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-75	30-45	10-35
	10-21	Sandy clay loam, clay loam, loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-75	30-45	10-35
	21-30	Sandy clay loam, clay loam, loam	CL, SC	A-6, A-7-6	0	0	100	100	80-100	40-75	40-50	20-28
	30-80	Clay loam, sandy clay loam, loam	CL, SC	A-7-6, A-6	0	0	100	100	80-100	40-75	40-50	20-28

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
EvA:												
Evadale---------	0-3	Silt loam	CL-ML, ML	A-4	0	0	100	99-100	90-100	75-95	10-25	NP-10
	3-10	Silt loam, loam	CL-ML, ML	A-4	0	0	100	99-100	90-100	75-95	10-25	NP-10
	10-20	Clay loam, silty clay loam, silt loam	CL	A-4, A-6	0	0	100	99-100	90-100	75-95	16-40	4-20
	20-42	Clay loam, silty clay loam	CL	A-6, A-7-6, A-4	0	0	100	99-100	95-100	90-97	30-45	10-25
	42-80	Clay loam, clay, silty clay, silty clay loam	CL	A-7-6	0	0	100	97-100	95-100	90-97	30-45	10-25
GPI:												
Pits------------	0-80	Variable			---	---	---	---	---	---	0-14	---
HaA:												
Hainesville-----	0-7	Loamy fine sand	SC-SM, SM	A-2-4, A-4	0	0	100	100	90-100	15-50	0-25	NP-5
	7-22	Loamy fine sand, fine sand	SM	A-2-4, A-4	0	0	100	100	90-100	15-50	0-25	NP-3
	22-80	Loamy fine sand, fine sandy loam, fine sand	ML, SM	A-2-4, A-4	0	0	100	100	90-100	20-55	0-25	NP-3
HhD:												
Hillister-------	0-28	Loamy sand	SC-SM, SM	A-2-4, A-4	0	0	95-100	95-100	70-95	15-40	16-20	NP-4
	28-50	Sandy clay loam, fine sandy loam, clay loam	CL, SC	A-4, A-6, A-7-6	0	0	95-100	95-100	80-100	36-66	25-46	8-26
	50-79	Stratified fine sandy loam to clay	CL, SC	A-2-6, A-6, A-7	0-1	0-3	89-100	85-100	80-100	28-84	25-45	11-26
IbA:												
Iulus-----------	0-3	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	79-100	75-100	31-56	17-33	3-13
	3-23	Loam, fine sandy loam	CL-ML, ML, SC-SM, SM, SC	A-4	0	0	95-100	79-100	74-100	35-61	17-33	3-13
	23-52	Fine sandy loam, loam	CL-ML, ML, SC-SM, SM, CL	A-4, A-6	0	0	95-100	79-100	70-100	39-69	17-37	3-17
	52-80	Fine sandy loam, loam, sandy clay loam	CL	A-4, A-6	0	0	95-100	84-100	74-100	28-58	20-39	6-19
Bleakwood-------	0-3	Loam	CL, CL-ML	A-4, A-6	0	0	94-100	83-100	74-100	50-74	22-39	7-19
	3-33	Loam, clay loam, fine sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	94-100	83-100	72-100	44-75	22-45	7-25
	33-64	Clay loam, loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	94-100	83-100	69-100	40-71	22-45	7-25
	64-80	Loam, clay loam, fine sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	94-100	83-100	74-100	39-69	22-45	7-25

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
JhA:												
Jayhawker-------	0-6	Silt loam	ML	A-4	0	0	98-100	98-100	95-100	70-85	2-10	NP-3
	6-69	Very fine sandy loam, silt loam	ML	A-4	0	0	98-100	98-100	95-100	70-85	2-16	NP-3
	69-80	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	98-100	98-100	95-100	70-85	2-16	1-6
KeB:												
Kenefick--------	0-5	Very fine sandy loam	ML	A-4	0	0	100	98-100	85-99	50-65	10-13	NP-2
	5-10	Fine sandy loam, very fine sandy loam	ML	A-4	0	0	100	98-100	85-99	50-65	10-16	NP-3
	10-25	Fine sandy loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	85-99	50-65	14-20	2-5
	25-46	Sandy clay, sandy clay loam, clay loam, loam	CL	A-6, A-4	0	0	100	98-100	85-100	50-80	26-40	9-17
	46-77	Loam, fine sandy loam, very fine sandy loam, sandy clay loam	CL, CL-ML	A-4	0	0	100	98-100	85-100	50-75	21-29	6-10
	77-80	Stratified fine sandy loam, stratified very fine sandy loam, stratified loam	CL-ML, ML	A-4	0	0	100	98-100	85-100	45-75	15-22	3-7
KfA:												
Kenefick--------	0-3	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	75-100	40-60	16-22	NP-6
	3-26	Fine sandy loam	SM, CL-ML, ML, SC-SM	A-4	0	0	100	100	75-100	40-60	16-22	NP-6
	26-55	Clay loam, sandy clay loam, loam	CL	A-6	0	0	100	100	80-100	55-85	29-38	10-15
	55-80	Fine sandy loam, sandy clay loam	CL, CL-ML, SC	A-4, A-6	0	0	100	100	80-100	40-70	23-30	7-11
Caneyhead-------	0-4	Silt loam	CL-ML, ML, CL	A-4	0	0	100	99-100	98-100	55-90	12-27	1-9
	4-18	Silt loam, loam, very fine sandy loam	CL-ML, ML, CL	A-4	0	0	100	99-100	99-100	55-90	12-26	1-8
	18-29	Silt loam, clay loam, loam	CL	A-4, A-6	0	0	100	99-100	98-100	70-95	25-36	8-14
	29-63	Clay loam, clay, loam	CL	A-6, A-7-6	0	0	100	99-100	98-100	70-95	33-49	12-22
	63-80	Clay loam, loam, very fine sandy loam	CL-ML	A-4, A-6	0	0	100	99-100	98-100	55-90	21-35	6-14

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
KgA:												
Kirbyville------	0-5	Fine sandy loam	ML	A-4	0	0	99-100	97-99	75-98	55-75	10-15	NP-2
	5-11	Fine sandy loam, loam, very fine sandy loam	ML	A-4	0	0	99-100	97-99	75-98	55-75	10-15	NP-2
	11-18	Very fine sandy loam, loam, fine sandy loam	ML, CL-ML	A-4	0	0	98-100	96-99	75-98	50-75	17-22	4-6
	18-60	Loam, sandy clay loam, clay loam	CL	A-6, A-4	0	0	98-100	96-99	75-98	50-70	25-34	8-13
	60-80	Clay loam, sandy clay loam, loam	CL	A-6, A-4	0	0	98-100	96-99	75-98	50-70	25-38	8-16
Niwana----------	0-6	Fine sandy loam	ML	A-4	0	0	99-100	100	90-100	50-70	11-16	0-3
	6-17	Very fine sandy loam, loam, fine sandy loam	ML	A-4	0	0	99-100	99-100	90-100	50-70	13-18	2-3
	17-29	Very fine sandy loam, fine sandy loam, loam	ML, CL-ML	A-4	0	0	99-100	98-100	90-100	50-75	15-22	2-7
	29-80	Sandy clay loam, loam	CL	A-4	0	0	99-100	98-100	90-100	45-75	24-34	8-13
KiB:												
Kirbyville------	0-6	Very fine sandy loam	ML	A-4	0	0	99-100	97-99	75-98	55-75	10-15	NP-2
	6-13	Fine sandy loam, loam, very fine sandy loam	ML	A-4	0	0	99-100	97-99	75-98	55-75	10-15	NP-2
	13-19	Very fine sandy loam, loam, fine sandy loam	ML, CL-ML	A-4	0	0	98-100	96-99	75-98	50-75	17-22	4-6
	19-56	Loam, sandy clay loam, clay loam	CL	A-6, A-4	0	0	98-100	96-99	75-98	50-70	25-34	8-13
	56-80	Clay loam, sandy clay loam, loam	CL	A-6, A-4	0	0	98-100	96-99	75-98	50-70	25-38	8-16
KnB:												
Kountze---------	0-6	Very fine sandy loam	ML	A-4	0	0	100	100	85-99	55-85	9-13	NP-2
	6-17	Very fine sandy loam, silt loam, fine sandy loam	ML	A-4	0	0	100	100	85-99	55-85	9-13	NP-2
	17-25	Fine sandy loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	100	85-99	55-85	11-14	NP-2
	25-54	Loam, very fine sandy loam, silt loam, fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-99	55-85	13-21	2-6
	54-80	Very fine sandy loam, silt loam, loam, fine sandy loam	ML, CL-ML, CL	A-4	0	0	100	100	85-99	55-85	15-26	2-8

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
KoA:												
Koury-----------	0-37	Very fine sandy loam	CL, CL-ML, ML	A-4	0	0	98-100	98-100	95-100	55-95	20-31	3-10
	37-53	Loam, silt loam, very fine sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	98-100	98-100	95-100	65-95	20-31	3-11
	53-80	Silt loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	98-100	98-100	95-100	65-95	20-40	4-20
Lb:												
Laneville-------	0-21	Fine sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	18-40	3-20
	21-38	Loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	85-98	20-40	6-20
	38-80	Clay, clay loam	CH, CL	A-6, A-7	0	0	100	95-100	90-100	85-98	35-55	20-35
LcB:												
Laska-----------	0-65	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	98-100	98-100	80-100	40-60	16-25	NP-7
	65-72	Fine sandy loam, sandy clay loam, clay loam, sandy clay	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	98-100	98-100	70-100	15-60	16-25	NP-7
LvA:												
Lelavale--------	0-4	Silt loam	ML, CL-ML, CL	A-4	0	0	100	98-100	85-100	75-90	11-25	NP-8
	4-16	Loam, silt loam	CL-ML, ML, CL	A-4	0	0	100	98-100	85-100	75-85	16-30	3-10
	16-41	Clay loam, loam, silt loam	CL-ML, CL	A-4, A-6	0	0	100	98-100	85-100	75-90	23-38	7-16
	41-49	Clay, clay loam	CL, CH	A-7-6	0	0	100	95-100	90-100	75-90	25-52	14-30
	49-80	Clay, clay loam	CL	A-6	0	0	100	95-100	90-100	75-90	36-47	14-20
MpA:												
Mollville-------	0-13	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	50-80	20-35	3-15
	13-43	Sandy clay loam, loam, clay loam	CL, SC	A-4, A-6	0	0	100	100	90-100	45-75	25-40	8-22
	43-65	Sandy clay loam, clay loam, loam	CL, SC	A-6	0	0	100	100	90-100	45-80	30-40	11-20
	65-80	Loamy fine sand, fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	95-100	95-100	70-95	15-68	0-25	NP-6
Besner----------	0-8	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	95-100	90-100	29-66	0-25	NP-7
	8-30	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	95-100	90-100	29-66	0-25	NP-7
	30-42	Fine sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	95-100	80-100	29-66	0-25	NP-7
	42-80	Loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	95-100	80-100	36-75	18-30	6-15

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
NhB:												
Newco	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	40-65	16-20	NP-3
	10-48	Clay, silty clay	CH, CL	A-7-6	0	0	95-100	95-100	90-100	80-95	45-70	20-40
	48-66	Variable			---	---	---	---	---	---	---	---
NhD:												
Newco	0-4	Fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	40-65	16-20	NP-3
	4-42	Clay, silty clay	CH, CL	A-7-6	0	0	95-100	95-100	90-100	80-95	45-70	20-40
	42-79	Variable			---	---	---	---	---	---	---	---
NoA:												
Nona	0-3	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	55-90	9-13	NP-2
	3-19	Very fine sandy loam, loam, silt loam	ML	A-4	0	0	100	100	95-100	54-90	10-15	NP-2
	19-38	Clay loam, silt loam, loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	60-90	20-27	5-15
	38-80	Loam, clay loam, silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	60-90	23-39	7-16
Dallardsville	0-5	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	5-28	Very fine sandy loam, fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	28-38	Very fine sandy loam, fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-65	9-20	NP-5
	38-60	Very fine sandy loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-100	50-75	12-21	NP-6
	60-80	Very fine sandy loam, loam, fine sandy loam, sandy clay loam	CL-ML, CL, ML	A-4	0	0	100	100	85-100	50-75	15-28	2-10
OiA:												
Olive	0-14	Fine sandy loam	ML	A-4	0	0	100	100	90-100	50-85	9-15	NP-2
	14-22	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	90-100	50-85	9-15	NP-2
	22-65	Fine sandy loam, silt loam, loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-85	10-20	NP-6
	65-80	Loam, fine sandy loam, silt loam	CL-ML, ML, CL	A-4	0	0	100	100	80-100	50-85	11-24	NP-8

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
Dallardsville---	0-4	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	4-26	Very fine sandy loam, fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	26-41	Very fine sandy loam, fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-65	9-20	NP-5
	41-63	Very fine sandy loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-100	50-75	12-21	NP-6
	63-80	Very fine sandy loam, loam, sandy clay loam, fine sandy loam	CL-ML, CL, ML	A-4	0	0	100	100	85-100	50-75	15-28	2-10
OtB:												
Otanya----------	0-6	Very fine sandy loam	ML	A-4	0	0	100	100	85-99	50-65	9-12	NP-1
	6-12	Fine sandy loam, very fine sandy loam	ML	A-4	0	0	100	100	85-99	50-65	10-12	NP-1
	12-19	Loam, fine sandy loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-99	50-70	12-20	1-6
	19-60	Clay loam, loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-99	50-75	23-34	7-13
	60-80	Sandy clay loam, clay loam	CL	A-4, A-6	0	0	100	100	80-99	50-75	25-38	8-16
OtC:												
Otanya----------	0-5	Fine sandy loam	ML	A-4	0	0	100	100	85-99	50-65	9-12	NP-1
	5-11	Fine sandy loam, very fine sandy loam	ML	A-4	0	0	100	100	85-99	50-65	10-12	NP-1
	11-19	Loam, fine sandy loam, very fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-99	50-70	12-20	1-6
	19-59	Loam, clay loam, sandy clay loam	CL	A-4, A-6	0	0	100	100	85-99	50-75	23-34	7-13
	59-80	Sandy clay loam, clay loam, loam	CL	A-4, A-6	0	0	100	100	85-99	50-75	25-38	8-16
Oz:												
Ozias-----------	0-6	Clay	CH, CL	A-7, A-7-6	0	0	99-100	98-100	97-100	85-100	45-70	20-40
	6-18	Silty clay, silty clay loam, clay	CH, CL	A-7, A-7-6	0	0	99-100	98-100	97-100	85-100	45-70	20-40
	18-80	Silty clay, silty clay loam, clay	CH	A-7, A-7-6	0	0	99-100	98-100	97-100	85-100	51-70	25-40
Pophers---------	0-4	Silty clay loam	CL	A-6, A-7, A-7-6	0	0	98-100	98-100	96-100	85-100	38-53	19-29
	4-80	Silt loam, silty clay loam, loam	CL	A-6, A-7	0	0	98-100	98-100	96-100	80-98	27-47	10-25

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
PkA:												
Plank-----------	0-3	Silt loam	ML	A-4	0	0	100	100	98-100	70-95	8-18	NP-4
	3-35	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	98-100	70-95	8-21	NP-6
	35-80	Silt loam, loam	CL-ML, ML	A-4	0	0	100	100	98-100	70-95	8-21	NP-6
PmB:												
Pinetucky-------	0-9	Fine sandy loam	SC-SM, SM	A-4	0	0	85-100	85-100	65-80	36-45	16-25	NP-7
	9-38	Sandy clay loam, clay loam	CL, SC	A-4, A-6	0	0	90-100	90-100	80-95	45-65	20-40	8-20
	38-80	Sandy clay loam, clay loam	CL, SC	A-4, A-6	0	0	95-100	90-100	80-95	45-65	20-40	8-20
RaB:												
Rayburn---------	0-6	Loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	70-99	25-65	16-25	NP-7
	6-52	Clay, silty clay	CH	A-7, A-7-6	0	0	100	100	90-100	75-95	51-80	25-50
	52-65	Bedrock			---	---	---	---	---	---	---	---
RaD:												
Rayburn---------	0-5	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	100	100	70-99	25-65	16-25	NP-7
	5-52	Clay, silty clay	CH	A-7, A-7-6	0	0	100	100	90-100	75-95	51-80	25-50
	52-72	Bedrock			---	---	---	---	---	---	---	---
ReB:												
Redco-----------	0-80	Clay	CH	A-7-6	0	0	98-100	90-100	85-100	65-95	75-90	48-60
ReD:												
Redco-----------	0-79	Clay	CH	A-7-6	0	0	98-100	90-100	85-100	65-95	75-90	48-60
RrB:												
Rogan-----------	0-20	Gravelly fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	70-90	50-85	45-85	25-48	16-25	NP-6
	20-38	Gravelly sandy clay loam, gravelly clay loam	CL, SC	A-2-4, A-2-6, A-4, A-6	0	0	70-95	50-95	45-90	24-76	20-40	8-20
	38-72	Sandy clay loam, clay loam	CL, SC	A-4, A-6	0	0	95-100	85-98	65-98	36-80	20-40	8-20
RrF:												
Rogan-----------	0-3	Gravelly fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	70-90	50-85	45-85	25-48	16-25	NP-6
	3-37	Gravelly sandy clay loam, gravelly clay loam	CL, SC	A-2-4, A-2-6, A-4, A-6	0	0	70-95	50-95	45-90	24-76	20-40	8-20
	37-70	Sandy clay loam, clay loam	CL, SC	A-4, A-6	0	0	95-100	85-98	65-98	36-80	20-40	8-20

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
SeD:												
Sawlit	0-12	Loam	CL, CL-ML, ML	A-4	0	0	96-100	95-100	85-100	51-75	18-33	3-12
	12-25	Loam, sandy clay loam, clay loam	CL	A-4, A-6	0	0	96-100	95-100	85-100	60-85	23-38	8-25
	25-43	Sandy clay loam, loam, clay loam	CL	A-4, A-6	0	0	96-100	95-100	85-100	65-90	31-47	8-25
	43-80	Clay, clay loam	CH, CL	A-6, A-7-6	0	0	96-100	95-100	85-100	65-95	38-62	25-36
Sawtown	0-19	Fine sandy loam	CL-ML, SC, SC-SM, SM	A-4	0	0	99-100	96-100	90-100	45-75	19-30	2-9
	19-36	Loam, clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	99-100	95-100	90-100	51-80	20-40	6-25
	36-49	Sandy clay loam, loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-2	75-100	64-98	62-95	41-80	20-40	6-25
	49-80	Clay, silty clay, clay loam	CH, CL	A-7-6	0	0	99-100	95-100	90-100	75-98	41-70	20-43
ShB:												
Shankler	0-52	Loamy sand	SM	A-2-4	0	0	95-100	95-100	60-90	15-30	16-20	NP-3
	52-60	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	95-100	95-100	80-95	36-55	25-45	11-30
	60-79	Sandy clay loam, sandy loam, fine sandy loam	SC, SC-SM	A-2, A-2-4, A-4, A-6	0	0	95-100	95-100	75-90	25-50	20-40	5-20
ShD:												
Shankler	0-50	Loamy sand	SM	A-2-4	0	0	95-100	95-100	60-90	15-30	16-20	NP-3
	50-70	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	95-100	95-100	80-95	36-55	25-45	11-30
	70-80	Sandy clay loam, sandy loam, fine sandy loam	SC, SC-SM	A-2, A-2-4, A-4, A-6	0	0	95-100	95-100	75-90	25-50	20-40	5-20
SiC:												
Silsbee	0-5	Fine sandy loam	ML, SC-SM	A-4	0	0	95-100	95-100	90-100	35-65	7-13	NP
	5-15	Fine sandy loam, very fine sandy loam	ML, SC-SM	A-4	0	0	95-100	90-100	90-100	35-65	7-13	NP
	15-49	Sandy clay loam, clay loam, loam	CL	A-6, A-4	0	0	95-100	90-100	90-100	55-75	23-34	7-13
	49-58	Sandy clay loam, clay loam, loam	CL	A-6, A-4	0	0	95-100	90-100	90-100	55-75	23-38	7-15
	58-80	Loam, sandy clay loam, fine sandy loam	SC, CL	A-4, A-6	0	0	95-100	90-100	90-100	45-75	23-34	7-13

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
SiD:												
Silsbee----------	0-5	Fine sandy loam	ML, SC-SM	A-4	0	0	95-100	95-100	90-100	35-65	7-13	NP
	5-15	Fine sandy loam, very fine sandy loam	ML, SC-SM	A-4	0	0	95-100	90-100	90-100	35-65	7-13	NP
	15-49	Sandy clay loam, clay loam, loam	CL	A-6, A-4	0	0	95-100	90-100	90-100	55-75	23-34	7-13
	49-58	Sandy clay loam, clay loam, loam	CL	A-6, A-4	0	0	95-100	90-100	90-100	55-75	23-38	7-15
	58-80	Loam, sandy clay loam, fine sandy loam	SC, CL	A-4, A-6	0	0	95-100	90-100	90-100	45-75	23-34	7-13
SnA:												
Sorter-----------	0-3	Very fine sandy loam	ML	A-4	0	0	100	100	69-100	54-80	9-14	NP-2
	3-24	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	70-100	54-80	9-18	NP-4
	24-78	Silt loam, loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	66-100	50-80	11-21	NP-6
	78-80	Silt loam, loam, very fine sandy loam	CL, ML, CL-ML	A-4	0	0	100	100	65-100	50-80	11-29	NP-10
Dallardsville---	0-5	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	5-22	Very fine sandy loam, fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	22-31	Very fine sandy loam, fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-65	9-20	NP-5
	31-58	Very fine sandy loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-100	50-75	12-21	NP-6
	58-80	Very fine sandy loam, loam, fine sandy loam, sandy clay loam	CL-ML, CL, ML	A-4	0	0	100	100	85-100	50-75	15-28	2-10
SsA:												
Spurger----------	0-5	Very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	90-100	70-99	50-75	16-25	NP-7
	5-11	Loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	90-100	70-99	50-75	16-25	NP-7
	11-58	Clay, clay loam	CH, CL	A-7-6	0	0	95-100	95-100	90-100	75-95	41-70	20-40
	58-74	Sandy clay loam, clay loam, loam	CL, CL-ML, SC, SC-SM	A-2-4, A-2-6, A-4, A-6	0	0	95-100	90-100	80-100	35-75	28-43	9-21
	74-80	Loamy fine sand, fine sandy loam	SC-SM, SM, SP-SM	A-2-4, A-3, A-4	0	0	95-100	90-100	50-95	20-50	14-30	NP-11

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
Caneyhead-------	0-4	Silt loam	ML	A-4	0	0	100	95-100	95-100	90-100	16-23	3-12
	4-18	Silt loam	CL-ML	A-4	0	0	100	95-100	95-100	90-100	16-25	NP-7
	18-29	Loam	CL	A-4, A-6	0	0	100	95-100	95-100	90-100	23-34	12-21
	29-46	Clay loam, loam	CL	A-4, A-6	0	0	100	95-100	95-100	90-100	25-38	13-25
	46-63	Clay loam, sandy clay loam, loam	CL	A-6, A-4	0	0	100	95-100	95-100	85-100	25-38	13-25
	63-80	Very fine sandy loam, fine sandy loam	ML, SC-SM	A-4	0	0	95-100	95-100	95-100	80-95	21-25	7-14
StM:												
Stringtown------	0-10	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0-1	90-100	85-100	70-85	36-55	16-30	NP-7
	10-58	Sandy clay loam, clay loam	CL, SC	A-4, A-6	0	0-1	80-100	70-100	65-100	36-65	20-40	8-20
	58-72	Variable			---	---	---	---	---	---	---	---
Bonwier---------	0-13	Fine sandy loam	CL-ML, ML, SC-SM, SM, SC	A-4	0	0-1	85-100	75-100	65-100	36-60	16-30	NP-8
	13-34	Clay, sandy clay	CH, CL	A-7-6	0	0-1	85-100	75-100	65-100	51-98	45-60	25-38
	34-63	Variable			---	---	---	---	---	---	---	---
TuB:												
Turkey----------	0-5	Sand	SP-SM	A-2-4, A-3	0	0	100	100	75-90	10-20	10-12	NP-0
	5-20	Sand, loamy sand	SP-SM	A-2-4, A-3	0	0	100	100	75-90	10-20	10-12	NP-1
	20-80	Sand, loamy sand	SP-SM	A-3, A-2-4	0	0	100	100	75-90	10-20	10-12	NP-1
TyA:												
Tyden-----------	0-6	Silt loam	ML	A-4	0	0	100	100	90-100	55-80	7-12	NP-2
	6-13	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	100	100	90-100	45-70	7-12	NP-2
	13-19	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	100	100	90-100	45-70	7-12	NP-2
	19-73	Loamy fine sand, fine sandy loam	ML, SM	A-4	0	0	100	100	90-100	45-70	7-16	NP-3
	73-80	Loam, fine sandy loam, sandy clay loam	ML, SM	A-4	0	0	100	100	90-100	45-70	8-21	NP-6
Babco-----------	0-12	Loamy fine sand	SM	A-2-4	0	0	100	100	95-100	30-40	7-11	NP-2
	12-16	Fine sandy loam	SM	A-4	0	0	100	100	95-100	35-45	7-12	NP-2
	16-22	Fine sandy loam, loamy very fine sand	SM	A-4	0	0	100	100	95-100	35-45	7-15	NP-3
	22-80	Fine sandy loam, loam	SM	A-4	0	0	100	100	95-100	35-45	7-20	NP-5

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
UrB:												
Urland----------	0-8	Fine sandy loam	SM	A-4	0	0-2	85-100	85-98	65-90	36-50	0-25	NP-4
	8-29	Clay, sandy clay, clay loam	CH, CL, MH, ML	A-7-6	0	0	95-100	85-100	85-99	51-75	41-60	15-30
	29-65	Clay loam, sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	85-100	85-99	36-70	20-40	4-20
	65-80	Variable			---	---	---	---	---	---	---	---
VoA:												
Votaw-----------	0-4	Fine sand	SP-SM, SM	A-2-4, A-3	0	0	100	100	90-95	10-20	7-10	NP-1
	4-80	Loamy fine sand, fine	SM, SP-SM	A-2-4, A-3	0	0	100	100	90-95	10-20	7-10	NP-1
W:												
Water-----------	---	---	---	---	---	---	---	---	---	---	---	---
WbA:												
Waller----------	0-4	Silt loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	55-90	11-19	NP-4
	4-15	Silt loam, loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	98-100	90-100	55-90	12-19	NP-4
	15-26	Silt loam, loam, very fine sandy loam	CL, CL-ML, ML	A-4	0	0	100	97-100	90-100	55-90	13-25	2-8
	26-37	Silt loam, loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	97-100	85-100	50-85	22-31	6-12
	37-80	Clay loam, loam, sandy clay loam	CL	A-4, A-6	0	0	100	95-100	85-100	50-85	24-38	8-15
Dallardsville---	0-7	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	7-20	Very fine sandy loam, fine sandy loam	ML	A-4	0	0	100	100	85-100	50-65	8-16	NP-3
	20-31	Very fine sandy loam, fine sandy loam	ML, CL-ML	A-4	0	0	100	100	85-100	50-65	9-20	NP-5
	31-38	Very fine sandy loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-100	50-75	12-21	NP-6
	38-80	Very fine sandy loam, loam, fine sandy loam, sandy clay loam	CL-ML, CL	A-4	0	0	100	100	85-100	50-75	15-28	2-10
WcB:												
Wiergate--------	0-28	Clay	CH	A-7-6	0	0	100	95-100	90-100	80-98	55-80	35-55
	28-79	Clay	CH	A-7-6	0	0	98-100	95-100	90-100	80-98	55-85	35-60
WnB:												
Woodville-------	0-8	Very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	95-100	75-99	36-81	16-30	NP-7
	8-22	Clay	CH	A-7, A-7-6	0	0	95-100	95-100	90-100	75-99	51-86	30-62
	22-80	Clay, clay loam	CH, CL	A-7, A-7-6	0	0	95-100	95-100	90-100	75-99	41-55	25-35

Table 26.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
WnD:												
Woodville-------	0-7	Very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	95-100	75-99	36-81	16-30	NP-7
	7-51	Clay	CH	A-7, A-7-6	0	0	95-100	95-100	90-100	75-99	51-86	30-62
	51-79	Clay, clay loam	CH, CL	A-7, A-7-6	0	0	95-100	95-100	90-100	75-99	41-55	25-35
WnS:												
Woodville-------	0-7	Loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	55-90	20-35	4-13
	7-21	Clay loam, silty clay loam, clay	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	39-56	21-32
	21-49	Clay, clay loam, silty clay loam	CH, CL	A-6, A-7	0	0	100	100	90-100	75-95	30-50	7-15
	49-80	Clay loam, loam, clay	CH, CL	A-6, A-7	0	0	100	100	90-100	56-95	33-56	14-33
Sawlit----------	0-20	Loam	CL, CL-ML, ML	A-4	0	0	96-100	95-100	85-100	51-75	18-30	NP-10
	20-33	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	96-100	95-100	85-100	60-85	20-40	5-20
	33-54	Clay loam, sandy clay loam, loam	CL, CL-ML	A-4, A-6	0	0	96-100	95-100	85-100	65-90	24-40	6-22
	54-80	Clay, clay loam	CH, CL	A-6, A-7-6	0	0	96-100	95-100	85-100	65-95	39-65	20-45

Table 27.--Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (K-sat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
AaB:												
Alazan	0-18	5-15	1.40-1.65	2-6	0.11-0.16	0.0-2.9	0.5-2.0	.37	.37	5	3	86
	18-80	20-30	1.45-1.70	0.6-2	0.12-0.18	0.0-2.9	0.1-1.0	.28	.37			
BcA:												
Belrose	0-6	0-6	1.35-1.50	8-39	0.09-0.20	0.0-0.5	0.5-1.0	.43	.43	5	2	134
	6-16	0-7	1.35-1.50	8-39	0.09-0.20	0.0-0.5	0.5-1.0	.43	.43			
	16-27	2-9	1.35-1.50	8-39	0.09-0.20	0.0-1.0	0.1-0.5	.43	.43			
	27-42	2-15	1.30-1.55	2-20	0.09-0.20	0.2-1.5	0.1-0.3	.43	.43			
	42-80	8-20	1.35-1.55	2-20	0.13-0.20	0.5-2.0	0.1-0.3	.32	.32			
Caneyhead	0-4	6-22	1.20-1.35	0.1-1	0.13-0.24	1.0-2.5	1.0-2.5	.55	.55	5	5	56
	4-18	6-21	1.30-1.60	0.01-1	0.13-0.24	1.0-2.0	0.2-0.8	.64	.64			
	18-29	20-32	1.30-1.60	0.01-0.1	0.16-0.24	1.0-3.0	0.2-0.8	.55	.55			
	29-63	29-47	1.30-1.60	0.00-0.1	0.16-0.24	1.0-4.5	0.2-0.8	.43	.43			
	63-80	16-31	1.30-1.60	0.00-0.1	0.16-0.24	1.0-4.5	0.1-0.5	.55	.55			
BiB:												
Belrose	0-5	0-6	1.35-1.50	8-39	0.09-0.20	0.0-0.5	0.5-1.0	.43	.43	5	2	134
	5-20	0-7	1.35-1.50	8-39	0.09-0.20	0.0-0.5	0.5-1.0	.43	.43			
	20-44	2-9	1.35-1.50	8-39	0.09-0.20	0.0-1.0	0.1-0.5	.43	.43			
	44-63	2-15	1.30-1.55	2-20	0.09-0.20	0.2-1.5	0.1-0.3	.43	.43			
	63-80	8-20	1.35-1.55	2-20	0.13-0.20	0.5-2.0	0.1-0.3	.32	.32			
BoB:												
Boykin	0-8	3-10	1.40-1.60	6-20	0.05-0.09	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	8-28	3-10	1.40-1.60	6-20	0.05-0.09	0.0-2.9	0.1-0.5	.20	.20			
	28-80	18-30	1.45-1.70	0.6-2	0.10-0.16	0.0-2.9	0.1-0.5	.28	.28			
BrC:												
Browndell	0-4	8-20	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	4-14	40-60	1.30-1.50	0.00-0.06	0.12-0.18	6.0-8.9	0.3-1.0	.32	.32			
	14-30	---	---	0.06-0.6	---	---	---	---	---			
Kitterll	0-14	6-18	1.40-1.65	0.6-2	0.11-0.17	0.0-2.9	0.5-2.0	.37	.37	1	3	86
	14-20	---	---	0.06-0.6	---	---	---	---	---			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
BrD:												
Browndell	0-9	8-20	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	9-17	40-60	1.30-1.50	0.00-0.06	0.12-0.18	6.0-8.9	0.3-1.0	.32	.32			
	17-37	---	---	0.06-0.6	---	---	---	---	---			
Kitterll	0-8	10-25	1.40-1.65	0.6-2	0.11-0.17	0.0-2.9	0.5-2.0	.37	.37	1	3	86
	8-15	---	---	0.06-0.6	---	---	---	---	---			
BrG:												
Browndell	0-4	8-20	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32	2	3	86
	4-15	40-60	1.30-1.50	0.00-0.06	0.12-0.18	6.0-8.9	0.3-1.0	.32	.32			
	15-30	---	---	0.06-0.6	---	---	---	---	---			
Kitterll	0-13	10-25	1.40-1.65	0.6-2	0.11-0.17	0.0-2.9	0.5-2.0	.37	.37	1	3	86
	13-20	---	---	0.06-0.6	---	---	---	---	---			
BuB:												
Burkeville	0-14	60-80	1.35-1.55	0.00-0.06	0.08-0.14	9.0-25.0	0.5-1.0	.32	.32	5	4	86
	14-80	60-80	1.35-1.55	0.00-0.06	0.08-0.14	9.0-25.0	0.1-1.0	.32	.32			
BuD:												
Burkeville	0-9	60-80	1.35-1.55	0.00-0.06	0.08-0.14	9.0-25.0	0.5-1.0	.32	.32	5	4	86
	9-79	60-80	1.35-1.55	0.00-0.06	0.08-0.14	9.0-25.0	0.1-1.0	.32	.32			
CgA:												
Chambliss	0-5	0-12	1.35-1.50	6-20	0.04-0.07	0.0-2.9	0.5-2.0	.17	.17	5	1	220
	5-80	5-20	1.35-1.65	6-20	0.05-0.12	0.0-2.9	0.1-0.5	.20	.20			
CiA:												
Choates	0-7	5-12	1.50-1.65	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	7-22	5-12	1.50-1.65	6-20	0.07-0.11	0.0-2.9	0.2-0.5	.17	.17			
	22-79	20-28	1.40-1.60	0.6-2	0.12-0.17	0.0-2.9	0.1-0.5	.32	.32			
CkB:												
Colita	0-25	5-15	1.40-1.60	2-6	0.11-0.15	0.0-2.9	0.5-2.0	.37	.37	4	3	86
	25-38	5-15	1.50-1.70	2-6	0.09-0.18	0.0-2.9	0.3-1.0	.37	.37			
	38-48	18-30	1.50-1.70	0.6-2	0.12-0.17	0.0-2.9	0.3-1.0	.37	.37			
	48-56	20-35	1.50-1.60	0.6-2	0.13-0.20	3.0-5.9	0.3-1.0	.32	.32			
	56-80	---	1.20-1.40	0.2-2	---	---	0.3-1.0	---	---			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
CkC:												
Colita----------------	0-6	5-15	1.40-1.60	2-6	0.11-0.15	0.0-2.9	0.5-2.0	.37	.37	4	3	86
	6-28	5-15	1.50-1.70	2-6	0.09-0.18	0.0-2.9	0.3-1.0	.37	.37			
	28-38	18-30	1.50-1.70	0.6-2	0.12-0.17	0.0-2.9	0.3-1.0	.37	.37			
	38-51	20-35	1.50-1.60	0.6-2	0.13-0.20	3.0-5.9	0.3-1.0	.32	.32			
	51-71	---	1.20-1.40	0.2-2	---	---	0.3-1.0	---	---			
Laska-----------------	0-28	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.2-1.0	.32	.32	5	3	86
	28-58	8-15	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.2-1.0	.32	.32			
	58-69	5-15	1.35-1.60	2-6	0.07-0.15	0.0-2.9	0.2-1.0	.32	.32			
CmB:												
Colmesneil------------	0-7	2-10	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.5-2.0	.17	.17	5	2	134
	7-29	2-10	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.1-1.0	.17	.17			
	29-79	5-15	1.20-1.50	6-20	0.08-0.11	0.0-2.9	0.1-1.0	.17	.17			
CoB:												
Corrigan--------------	0-6	15-25	1.20-1.45	0.6-2	0.11-0.15	0.0-2.9	0.5-3.0	.43	.43	3	3	86
	6-33	40-60	1.20-1.35	0.00-0.06	0.12-0.18	6.0-8.9	0.5-1.0	.32	.32			
	33-40	---	---	0.06-0.6	---	---	---	---	---			
CoE:												
Corrigan--------------	0-6	15-25	1.20-1.45	0.6-2	0.11-0.15	0.0-2.9	0.5-3.0	.43	.43	3	3	86
	6-33	40-60	1.20-1.35	0.00-0.06	0.12-0.18	6.0-8.9	0.5-1.0	.32	.32			
	33-40	---	---	0.06-0.6	---	---	---	---	---			
CyA:												
Cypress---------------	0-12	40-50	1.40-1.70	0.00-0.06	0.15-0.20	3.0-5.9	2.0-5.0	.32	.32	5	4	86
	12-17	30-50	1.10-1.50	0.00-0.06	0.12-0.20	3.0-5.9	1.0-2.0	.32	.32			
	17-80	30-50	1.10-1.50	0.00-0.06	0.12-0.20	3.0-5.9	0.5-1.0	.32	.32			
DoB:												
Doucette--------------	0-6	3-10	1.45-1.60	6-20	0.05-0.09	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	6-34	3-10	1.50-1.65	6-20	0.05-0.09	0.0-2.9	0.1-0.5	.20	.20			
	34-79	20-35	1.35-1.55	0.6-2	0.10-0.15	0.0-2.9	0.1-0.5	.24	.24			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
EtA:												
Estes----------------	0-5	40-59	1.40-1.55	0.00-0.06	0.12-0.18	6.0-8.9	0.5-5.0	.32	.32	5	4	86
	5-10	40-59	1.40-1.55	0.00-0.06	0.12-0.18	6.0-8.9	0.5-5.0	.32	.32			
	10-43	40-59	1.40-1.55	0.00-0.06	0.12-0.18	6.0-8.9	0.5-5.0	.32	.32			
	43-80	40-59	1.40-1.55	0.00-0.06	0.12-0.18	6.0-8.9	0.5-5.0	.32	.32			
Angelina------------	0-4	10-25	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	1.0-3.0	.28	.28	5	5	56
	4-10	24-35	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	0.5-2.0	.28	.28			
	10-21	24-35	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	0.5-2.0	.28	.28			
	21-30	24-35	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	0.5-1.0	.28	.28			
	30-46	24-35	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	0.5-1.0	.28	.28			
	46-67	24-35	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	0.5-1.0	.28	.28			
	67-80	24-35	1.20-1.40	0.06-0.2	0.12-0.17	0.0-2.9	0.5-1.0	.28	.28			
EvA:												
Evadale-------------	0-3	8-14	1.20-1.35	2-8	0.16-0.22	1.0-4.0	1.0-3.5	.49	.49	5	5	56
	3-10	8-17	1.20-1.50	2-8	0.16-0.22	1.0-4.0	0.5-2.0	.64	.64			
	10-20	21-37	1.20-1.50	0.9-4	0.16-0.22	1.0-6.0	0.5-1.5	.49	.49			
	20-42	29-45	1.30-1.60	0.02-0.2	0.14-0.20	6.0-8.9	0.1-1.0	.43	.43			
	42-80	31-50	1.35-1.65	0.02-0.2	0.18-0.22	6.0-8.9	0.1-0.5	.43	.43			
GPI:												
Pits, gravel--------	0-8	---	---	0.06-20	---	---	---	---	---	5	---	---
	8-42	---	---	---	---	---	---	---	---			
HaA:												
Hainesville---------	0-7	4-15	1.35-1.65	6-20	0.07-0.11	0.0-2.9	0.5-2.0	.20	.20	5	2	134
	7-22	2-15	1.35-1.60	2-6	0.08-0.11	0.0-2.9	0.5-1.0	.20	.20			
	22-80	5-20	1.35-1.70	2-6	0.08-0.13	0.0-2.9	0.5-1.0	.20	.20			
HhD:												
Hillister-----------	0-6	3-15	1.50-1.65	6-20	0.05-0.10	0.0-2.9	0.5-1.0	.17	.24	3	2	134
	6-28	3-15	1.50-1.65	6-20	0.05-0.10	0.0-2.9	0.1-0.5	.24	.24			
	28-50	18-37	1.50-1.65	0.6-2	0.10-0.15	0.0-2.9	0.1-0.5	.32	.32			
	50-79	20-35	1.60-1.75	0.2-0.6	0.08-0.14	0.0-2.9	0.1-0.5	.32	.32			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
IbA:												
Iulus	0-3	6-20	1.26-1.45	0.6-2	0.11-0.18	0.0-2.9	0.1-1.0	.32	.32	5	5	56
	3-23	6-20	1.26-1.45	0.6-2	0.11-0.18	0.0-2.9	0.1-1.0	.32	.32			
	23-52	6-25	1.26-1.45	0.6-2	0.11-0.18	0.0-2.9	0.1-1.0	.32	.32			
	52-80	10-28	1.30-1.50	0.6-2	0.11-0.18	0.0-2.9	0.1-1.0	.32	.32			
Bleakwood	0-3	12-27	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	0.2-1.0	.28	.28	5	3	86
	3-33	12-35	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	0.2-1.0	.28	.28			
	33-64	12-35	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	0.2-1.0	.28	.28			
	64-80	12-35	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	0.2-1.0	.28	.28			
JhA:												
Jayhawker	0-6	1-7	1.45-1.55	4-8	0.11-0.20	0.5-1.5	1.0-1.5	.49	.49	5	5	56
	6-36	2-10	1.50-1.65	2-4	0.11-0.20	0.0-1.5	0.0-0.5	.49	.49			
	36-69	3-15	1.55-1.70	0.4-4	0.11-0.20	0.5-1.5	0.0-0.5	.49	.49			
	69-80	2-15	1.65-1.90	0.04-0.2	0.11-0.20	0.0-1.0	0.0-0.5	.49	.49			
KeB:												
Kenefick	0-5	4-7	1.50-1.65	0.1-1	0.11-0.15	0.2-2.9	1.0-3.0	.43	.43	5	3	86
	5-10	4-10	1.50-1.65	0.1-1	0.11-0.15	0.2-2.9	0.5-1.5	.49	.49			
	10-25	8-14	1.50-1.65	0.01-1	0.11-0.15	0.2-2.9	0.2-0.8	.49	.49			
	25-46	21-38	1.45-1.60	0.00-0.01	0.12-0.18	1.0-5.9	0.2-0.5	.32	.32			
	46-77	15-24	1.45-1.55	0.1-2	0.12-0.17	1.0-2.9	0.1-0.2	.43	.43			
	77-80	9-17	1.45-1.65	0.6-2	0.12-0.17	0.2-2.9	0.0-0.2	.49	.49			
KfA:												
Kenefick	0-3	5-15	1.30-1.45	2-6	0.11-0.15	0.0-2.9	0.2-2.0	.24	.24	5	3	86
	3-26	5-15	1.30-1.45	2-6	0.11-0.15	0.0-2.9	0.2-2.0	.24	.24			
	26-55	20-34	1.35-1.55	0.6-2	0.12-0.18	3.0-5.9	0.1-1.0	.32	.32			
	55-80	10-24	1.50-1.65	0.6-2	0.12-0.17	0.0-2.9	0.1-1.0	.37	.37			
Caneyhead	0-4	6-22	1.20-1.35	0.1-1	0.13-0.24	1.0-2.5	1.0-2.5	.55	.55	5	5	56
	4-18	6-21	1.30-1.60	0.01-1	0.13-0.24	1.0-2.0	0.2-0.8	.64	.64			
	18-29	20-32	1.30-1.60	0.01-0.1	0.16-0.24	1.0-3.0	0.2-0.8	.55	.55			
	29-63	29-47	1.30-1.60	0.00-0.1	0.16-0.24	1.0-4.5	0.2-0.8	.43	.43			
	63-80	16-31	1.30-1.60	0.00-0.1	0.16-0.24	1.0-4.5	0.1-0.5	.55	.55			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
KgA:												
Kirbyville----------	0-8	3-9	1.50-1.70	0.1-1	0.11-0.20	0.2-1.0	1.0-5.0	.49	.49	5	3	86
	8-20	3-12	1.60-1.70	0.1-1	0.11-0.20	0.3-1.0	0.5-2.0	.55	.55			
	20-26	11-16	1.50-1.75	0.1-1	0.11-0.20	0.8-3.0	0.2-0.5	.55	.55			
	26-35	18-30	1.50-1.75	0.1-1	0.11-0.20	0.8-3.0	0.2-0.5	.55	.55			
	35-74	20-32	1.45-1.75	0.01-0.1	0.12-0.20	1.0-3.0	0.1-0.5	.49	.49			
	74-80	20-35	1.45-1.75	0.01-0.1	0.12-0.20	1.0-3.0	0.0-0.2	.37	.37			
Niwana--------------	0-6	3-8	1.35-1.50	0.1-6	0.11-0.20	0.0-2.9	1.0-3.5	.17	.17	5	3	86
	6-14	3-9	1.35-1.60	0.1-6	0.11-0.20	0.0-2.9	0.8-1.5	.17	.17			
	14-35	8-17	1.45-1.60	0.1-1	0.15-0.20	0.0-2.9	0.2-0.5	.17	.17			
	35-80	15-30	1.45-1.60	0.1-1	0.15-0.20	0.0-2.9	0.1-0.3	.15	.15			
KiB:												
Kirbyville----------	0-6	3-9	1.60-1.70	0.1-1	0.11-0.20	0.3-1.0	1.0-3.5	.37	.37	5	3	86
	6-13	3-9	1.60-1.70	0.1-1	0.11-0.20	0.3-1.0	0.5-2.0	.49	.49			
	13-19	11-16	1.50-1.75	0.1-1	0.11-0.20	0.8-3.0	0.2-0.5	.49	.49			
	19-56	21-30	1.45-1.75	0.01-0.1	0.12-0.20	1.0-3.0	0.1-0.5	.37	.37			
	56-80	20-35	1.45-1.75	0.01-0.1	0.12-0.20	1.0-3.0	0.0-0.2	.37	.37			
KnB:												
Kountze-------------	0-6	2-7	1.30-1.50	0.1-6	0.11-0.24	0.0-3.0	1.5-3.0	.55	.55	5	3	86
	6-17	2-7	1.35-1.55	0.1-6	0.11-0.24	0.0-3.0	0.3-0.8	.55	.55			
	17-25	4-8	1.35-1.55	0.1-1	0.11-0.24	0.0-3.0	0.1-0.4	.55	.55			
	25-54	7-16	1.35-1.55	0.1-1	0.11-0.24	1.0-3.0	0.1-0.3	.55	.55			
	54-80	9-21	1.40-1.60	0.1-1	0.11-0.24	1.0-6.0	0.1-0.2	.55	.55			
KoA:												
Koury---------------	0-37	6-17	1.40-1.60	0.2-0.6	0.12-0.18	0.0-2.9	0.5-1.0	.49	.49	5	6	48
	37-53	6-17	1.45-1.65	0.2-0.6	0.12-0.18	0.0-2.9	0.1-0.5	.49	.49			
	53-80	15-35	1.45-1.65	0.2-0.6	0.12-0.20	0.0-2.9	0.1-0.5	.49	.49			
Lb:												
Laneville-----------	0-21	10-25	1.25-1.35	0.6-2	0.11-0.16	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	21-38	18-35	1.30-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.1-1.0	.32	.32			
	38-80	35-50	1.40-1.55	0.06-0.2	0.12-0.18	6.0-8.9	0.1-1.0	.32	.32			
LcB:												
Laska---------------	0-20	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.2-1.0	.32	.32	5	3	86
	20-65	8-15	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.2-1.0	.32	.32			
	65-72	5-30	1.35-1.60	2-6	0.07-0.15	0.0-2.9	0.2-1.0	.32	.32			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
LvA:												
Lelavale------------	0-4	5-20	1.40-1.60	0.2-0.6	0.15-0.24	0.5-2.0	0.5-1.0	.43	.43	5	5	56
	4-12	10-25	1.45-1.65	0.2-0.6	0.15-0.24	0.5-2.0	0.0-0.5	.43	.43			
	12-16	10-25	1.45-1.65	0.2-0.6	0.15-0.24	0.5-2.0	0.0-0.5	.43	.43			
	16-41	18-35	1.50-1.70	0.2-0.6	0.15-0.24	0.5-2.0	0.0-0.5	.37	.37			
	41-49	32-50	1.60-1.75	0.00-0.2	0.12-0.16	6.0-10.0	0.0-0.5	.37	.37			
	49-80	32-45	1.60-1.75	0.00-0.2	0.12-0.18	2.0-10.0	0.0-0.5	.37	.37			
MpA:												
Mollville-----------	0-13	16-20	1.40-1.65	0.2-0.6	0.15-0.20	0.0-2.9	0.5-1.0	.37	.37	5	5	56
	13-43	20-35	1.50-1.69	0.06-0.2	0.12-0.17	3.0-5.9	0.0-0.5	.32	.32			
	43-65	20-35	1.50-1.69	0.06-0.2	0.15-0.20	3.0-5.9	0.0-0.5	.32	.32			
	65-80	3-12	1.50-1.65	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.20			
Besner--------------	0-8	4-15	1.20-1.40	2-6	0.11-0.16	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	8-30	4-17	1.20-1.40	2-6	0.11-0.16	0.0-2.9	0.5-1.0	.24	.24			
	30-42	5-25	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32			
	42-80	10-25	1.30-1.50	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32			
NhB:												
Newco---------------	0-10	5-15	1.20-1.40	0.6-2	0.10-0.20	0.0-2.9	0.5-1.0	.37	.37	3	3	86
	10-48	40-60	1.40-1.60	0.06-0.2	0.12-0.18	6.0-8.9	0.1-0.5	.32	.32			
	48-66	---	---	0.06-0.6	---	---	0.1-0.5	---	---			
NhD:												
Newco---------------	0-4	5-15	1.20-1.40	0.6-2	0.10-0.20	0.0-2.9	0.5-1.0	.37	.37	3	3	86
	4-42	40-60	1.40-1.60	0.06-0.2	0.12-0.18	6.0-8.9	0.1-0.5	.32	.32			
	42-79	---	---	0.06-0.6	---	---	0.1-0.5	---	---			
NoA:												
Nona----------------	0-3	2-7	1.25-1.35	0.1-1	0.13-0.24	0.0-3.0	0.5-1.5	.64	.64	5	5	56
	3-19	3-9	1.35-1.65	0.1-1	0.13-0.24	0.0-3.0	0.2-0.8	.64	.64			
	19-38	14-22	1.45-1.70	0.01-0.1	0.13-0.24	3.0-6.0	0.1-0.5	.55	.55			
	38-80	18-36	1.45-1.70	0.01-0.1	0.16-0.24	3.0-9.0	0.1-0.3	.37	.37			
Dallardsville-------	0-5	1-10	1.25-1.45	0.1-1	0.11-0.24	0.5-3.0	0.5-1.5	.55	.55	5	3	86
	5-28	1-10	1.35-1.45	0.1-1	0.11-0.24	0.5-4.0	0.2-1.0	.55	.55			
	28-38	2-14	1.45-1.60	0.01-1	0.11-0.24	0.2-5.9	0.1-0.5	.64	.64			
	38-60	5-16	1.50-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.64	.64			
	60-80	9-23	1.55-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.55	.55			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (K-sat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
OiA:												
Olive---------------	0-14	2-9	1.35-1.60	0.1-1	0.11-0.24	0.0-3.0	3.0-8.0	.43	.43	3	5	56
	14-22	2-9	1.45-1.70	0.00-0.1	0.11-0.24	0.0-3.0	1.0-3.0	.49	.49			
	22-65	3-15	1.70-1.95	0.00-0.01	0.11-0.24	0.0-3.0	0.2-0.5	.55	.55			
	65-80	4-19	1.70-1.95	0.00-0.01	0.11-0.24	0.0-3.0	0.1-0.3	.64	.64			
Dallardsville-------	0-4	1-10	1.25-1.45	0.1-1	0.11-0.24	0.5-3.0	0.5-1.5	.55	.55	5	3	86
	4-26	1-10	1.35-1.45	0.1-1	0.11-0.24	0.5-4.0	0.2-1.0	.55	.55			
	26-41	2-14	1.45-1.60	0.01-1	0.11-0.24	0.2-5.9	0.1-0.5	.64	.64			
	41-63	5-16	1.50-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.64	.64			
	63-80	9-23	1.50-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.55	.55			
OtB:												
Otanya--------------	0-6	2-6	1.00-1.55	0.1-6	0.11-0.20	1.0-3.0	1.0-3.5	.43	.43	5	3	86
	6-12	3-6	1.40-1.60	0.1-6	0.11-0.20	1.0-3.0	0.5-1.0	.49	.49			
	12-19	6-15	1.45-1.60	0.1-1	0.11-0.20	0.2-3.0	0.1-0.5	.49	.49			
	19-60	18-30	1.50-1.65	0.1-1	0.12-0.20	1.0-3.0	0.1-0.3	.49	.49			
	60-80	20-35	1.55-1.70	0.1-1	0.12-0.20	1.0-6.0	0.1-0.3	.49	.49			
OtC:												
Otanya--------------	0-5	2-6	1.00-1.55	0.1-6	0.11-0.20	1.0-3.0	1.0-3.5	.43	.43	5	3	86
	5-11	3-6	1.40-1.60	0.1-6	0.11-0.20	1.0-3.0	0.5-1.0	.49	.49			
	11-19	6-15	1.45-1.60	0.1-1	0.11-0.20	0.2-3.0	0.1-0.5	.49	.49			
	19-59	18-30	1.50-1.65	0.1-1	0.12-0.20	1.0-3.0	0.1-0.3	.49	.49			
	59-80	20-35	1.55-1.70	0.1-1	0.12-0.20	1.0-6.0	0.1-0.3	.49	.49			
Oz:												
Ozias---------------	0-6	40-60	1.20-1.40	0.00-0.06	0.12-0.16	6.0-8.9	1.0-4.0	.32	.32	5	4	86
	6-18	35-60	1.25-1.50	0.00-0.06	0.12-0.16	6.0-8.9	1.0-2.0	.32	.32			
	18-80	35-60	1.25-1.50	0.00-0.06	0.12-0.16	6.0-8.9	0.5-1.0	.32	.32			
Pophers-------------	0-4	27-40	1.20-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-2.0	.32	.49	5	7	38
	4-80	15-35	1.30-1.50	0.2-0.6	0.13-0.20	3.0-5.9	0.2-1.0	.37	.49			
PkA:												
Plank---------------	0-3	2-12	1.45-1.60	0.6-2	0.15-0.20	0.0-2.9	1.0-3.5	.43	.43	5	5	56
	3-35	2-15	1.50-1.70	0.2-0.6	0.11-0.15	0.0-2.9	0.1-0.5	.43	.43			
	35-80	5-18	1.55-1.75	0.2-0.6	0.11-0.15	0.0-2.9	0.1-0.3	.43	.43			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
PmB:												
Pinetucky-----------	0-9	8-20	1.40-1.60	2-6	0.10-0.15	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	9-38	20-35	1.50-1.70	0.2-0.6	0.15-0.20	0.0-2.9	0.1-0.5	.32	.32			
	38-80	20-35	1.60-1.70	0.2-0.6	0.15-0.20	0.0-2.9	0.1-0.5	.28	.28			
RaB:												
Rayburn-------------	0-6	8-20	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	0.5-1.0	.43	.43	4	3	86
	6-52	40-60	1.30-1.50	0.00-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.37	.37			
	52-65	---	---	0.06-0.6	---	---	---	---	---			
RaD:												
Rayburn-------------	0-5	8-20	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	0.5-1.0	.43	.43	4	3	86
	5-52	40-60	1.30-1.50	0.00-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.37	.37			
	52-72	---	---	0.06-0.6	---	---	---	---	---			
ReB:												
Redco---------------	0-5	50-80	1.25-1.45	0.00-0.06	0.12-0.17	9.0-25.0	0.5-2.0	.32	.32	5	4	86
	5-10	60-80	1.30-1.50	0.00-0.06	0.08-0.14	9.0-25.0	0.5-2.0	.32	.32			
	10-80	60-80	1.35-1.55	0.00-0.06	0.07-0.14	9.0-25.0	0.1-1.0	.32	.32			
ReD:												
Redco---------------	0-5	50-80	1.25-1.45	0.00-0.06	0.12-0.17	9.0-25.0	0.5-2.0	.32	.32	5	4	86
	5-26	60-80	1.30-1.50	0.00-0.06	0.08-0.14	9.0-25.0	0.5-2.0	.32	.32			
	26-79	60-80	1.35-1.55	0.00-0.06	0.07-0.14	9.0-25.0	0.1-1.0	.32	.32			
RrB:												
Rogan---------------	0-20	8-20	1.10-1.40	2-6	0.10-0.15	0.0-2.9	0.5-1.0	.28	.37	5	8	0
	20-38	20-35	1.20-1.50	0.6-2	0.15-0.20	0.0-2.9	0.1-0.5	.24	.32			
	38-72	20-35	1.20-1.50	0.2-0.6	0.15-0.20	0.0-2.9	0.1-0.5	.24	.32			
RrF:												
Rogan---------------	0-3	8-20	1.10-1.40	2-6	0.10-0.15	0.0-2.9	0.5-1.0	.28	.37	5	8	0
	3-37	20-35	1.20-1.50	0.6-2	0.15-0.20	0.0-2.9	0.1-0.5	.24	.32			
	37-70	20-35	1.20-1.50	0.2-0.6	0.15-0.20	0.0-2.9	0.1-0.5	.24	.32			
SeD:												
Sawlit--------------	0-12	6-18	1.35-1.50	2-6	0.11-0.16	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	12-25	15-35	1.35-1.50	0.6-2	0.13-0.18	0.0-2.9	0.3-1.0	.37	.37			
	25-43	20-35	1.30-1.55	0.6-2	0.13-0.18	3.0-5.9	0.3-1.0	.37	.37			
	43-80	35-50	1.20-1.45	0.00-0.06	0.12-0.17	6.0-8.9	0.3-1.0	.32	.32			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Sawtown-------------	0-19	2-18	1.28-1.45	2-6	0.11-0.16	0.0-2.9	0.5-2.0	.37	.37	5	3	86
	19-36	18-35	1.28-1.45	0.6-2	0.11-0.18	3.0-5.9	0.1-1.0	.32	.32			
	36-49	18-35	1.30-1.45	0.6-2	0.13-0.18	3.0-5.9	0.1-1.0	.32	.32			
	49-80	35-55	1.30-1.65	0.06-0.2	0.12-0.17	6.0-8.9	0.1-1.0	.32	.32			
ShB:												
Shankler------------	0-52	2-10	1.45-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	1	220
	52-60	20-35	1.35-1.55	0.6-2	0.12-0.17	0.0-2.9	0.1-0.5	.24	.24			
	60-79	15-30	1.35-1.55	0.6-2	0.10-0.17	0.0-2.9	0.1-0.5	.24	.24			
ShD:												
Shankler------------	0-50	2-10	1.45-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.17	.17	5	1	220
	50-70	20-35	1.35-1.55	0.6-2	0.12-0.17	0.0-2.9	0.1-0.5	.24	.24			
	70-80	15-30	1.35-1.55	0.6-2	0.10-0.17	0.0-2.9	0.1-0.5	.24	.24			
SiC:												
Silsbee-------------	0-5	1-6	1.45-1.60	2-6	0.11-0.20	1.0-1.5	1.0-2.0	.37	.37	5	2	134
	5-15	1-6	1.55-1.66	2-6	0.11-0.20	1.0-1.5	0.5-1.0	.43	.43			
	15-49	18-30	1.55-1.71	0.2-0.6	0.11-0.20	1.0-2.0	0.0-0.5	.32	.32			
	49-58	18-33	1.60-1.70	0.2-0.6	0.11-0.20	1.0-2.0	0.0-0.5	.28	.28			
	58-80	18-30	1.60-1.71	0.2-0.6	0.11-0.20	1.0-2.0	0.0-0.5	.24	.24			
SiD:												
Silsbee-------------	0-5	1-6	1.45-1.60	2-6	0.11-0.20	1.0-1.5	1.0-2.0	.37	.37	5	2	134
	5-15	1-6	1.55-1.66	2-6	0.11-0.20	1.0-1.5	0.5-1.0	.43	.43			
	15-49	18-30	1.55-1.71	0.2-0.6	0.11-0.20	1.0-2.0	0.0-0.5	.32	.32			
	49-58	18-33	1.60-1.70	0.2-0.6	0.11-0.20	1.0-2.0	0.0-0.5	.28	.28			
	58-80	18-30	1.60-1.71	0.2-0.6	0.11-0.20	1.0-2.0	0.0-0.5	.24	.24			
SnA:												
Sorter--------------	0-3	2-8	1.10-1.30	1-14	0.11-0.20	0.0-3.0	1.0-2.5	.49	.49	3	5	56
	3-24	2-12	1.50-1.65	0.1-1	0.11-0.20	0.0-3.0	0.2-0.5	.64	.64			
	24-78	4-16	1.55-1.70	0.1-1	0.11-0.20	0.0-3.0	0.0-0.2	.64	.64			
	78-80	4-24	1.55-1.70	0.01-1	0.11-0.20	0.0-6.0	0.0-0.1	.64	.64			
Dallardsville-------	0-5	1-10	1.35-1.45	0.1-1	0.11-0.24	0.5-3.0	0.5-1.5	.55	.55	5	3	86
	5-22	1-10	1.35-1.45	0.1-1	0.11-0.24	0.5-4.0	0.2-1.0	.55	.55			
	22-31	2-14	1.45-1.60	0.01-1	0.11-0.24	0.2-5.9	0.1-0.5	.64	.64			
	31-58	5-16	1.55-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.64	.64			
	58-80	9-23	1.55-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.55	.55			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K-sat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
SsA:												
Spurger	0-5	6-15	1.20-1.35	4-8	0.11-0.17	0.0-2.9	0.5-2.0	.37	.37	5	3	86
	5-11	6-15	1.20-1.35	4-8	0.11-0.17	0.0-2.9	0.5-2.0	.37	.37			
	11-58	35-60	1.20-1.50	0.06-0.2	0.12-0.18	6.0-10.0	0.2-0.5	.32	.32			
	58-74	18-35	1.30-1.50	0.2-0.6	0.12-0.17	3.0-9.0	0.1-0.5	.32	.32			
	74-80	2-20	1.30-1.65	0.6-6	0.05-0.15	0.0-2.9	0.1-0.5	.32	.32			
Caneyhead	0-4	10-18	1.20-1.35	0.06-0.6	0.13-0.24	1.0-2.5	1.5-2.5	.43	.43	5	5	56
	4-18	10-20	1.30-1.60	0.06-0.6	0.13-0.24	1.0-2.0	0.2-1.0	.55	.55			
	18-29	18-30	1.30-1.60	0.06-0.2	0.16-0.24	1.0-3.0	0.2-1.0	---	---			
	29-46	20-35	1.30-1.60	0.00-0.06	0.16-0.24	1.0-5.0	0.0-0.8	---	---			
	46-63	20-35	1.30-1.60	0.00-0.06	0.16-0.24	1.0-4.5	0.0-0.5	---	---			
	63-80	15-20	1.30-1.60	0.06-0.6	0.16-0.24	1.0-4.5	0.0-0.2	---	---			
StM:												
Stringtown	0-10	8-18	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	10-58	18-35	1.35-1.55	0.6-2	0.15-0.20	0.0-2.9	0.2-0.5	.28	.32			
	58-72	---	---	0.06-0.6	---	---	0.1-0.5	---	---			
Bonwier	0-13	8-20	1.20-1.40	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	13-34	35-60	1.30-1.50	0.2-0.6	0.12-0.18	3.0-5.9	0.2-0.5	.32	.32			
	34-63	---	---	0.06-0.6	---	---	0.1-0.5	---	---			
TuB:												
Turkey	0-5	3-5	1.50-1.65	6-14	0.02-0.08	0.0-1.0	0.9-2.5	.64	.64	5	1	180
	5-20	3-6	1.55-1.70	6-14	0.02-0.08	0.0-1.0	0.2-0.5	.55	.55			
	20-80	3-6	1.55-1.75	6-14	0.02-0.08	0.0-1.0	0.0-0.1	.55	.55			
TyA:												
Tyden	0-6	1-6	1.40-1.50	0.6-6	0.24-0.40	1.0-3.0	5.0-12	.49	.49	5	5	56
	6-13	1-6	1.55-1.70	0.06-0.6	0.11-0.24	0.5-1.5	0.5-1.5	.49	.49			
	13-19	1-6	1.65-1.85	0.06-0.2	0.11-0.24	0.5-1.5	0.0-0.5	.49	.49			
	19-41	3-10	1.65-1.80	0.06-0.2	0.11-0.24	0.5-1.5	0.0-0.5	.49	.49			
	41-73	3-10	1.65-1.80	0.06-0.2	0.11-0.24	0.5-1.5	0.0-0.5	.49	.49			
	73-80	5-22	1.65-1.80	0.06-0.2	0.11-0.24	1.0-2.0	0.0-0.5	.49	.49			
Babco	0-8	1-5	1.30-1.45	6-20	0.16-0.24	0.0-1.0	2.0-5.0	.24	.24	5	2	134
	8-12	1-5	1.30-1.45	6-20	0.16-0.24	0.0-1.0	2.0-5.0	.24	.24			
	12-16	1-6	1.65-1.85	0.2-0.6	0.07-0.15	0.0-1.0	0.0-0.5	.43	.43			
	16-22	2-8	1.70-1.90	0.2-0.6	0.07-0.18	0.0-1.0	0.0-0.5	.43	.43			
	22-55	3-13	1.70-1.90	0.2-0.6	0.07-0.18	0.0-1.0	0.0-0.5	.37	.37			
	55-80	3-13	1.80-1.95	0.2-0.6	0.07-0.18	0.0-1.0	0.0-0.5	.37	.37			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
UrB:												
Urland----------------	0-8	5-18	1.20-1.40	2-6	0.10-0.15	0.0-2.9	0.1-1.0	.28	.37	4	3	86
	8-29	35-55	1.30-1.50	0.2-0.6	0.12-0.18	3.0-5.9	0.1-1.0	.32	.32			
	29-65	17-40	1.35-1.55	0.6-2	0.12-0.17	3.0-5.9	0.1-1.0	.32	.32			
	65-80	---	---	0.06-0.6	---	---	0.1-0.5	---	---			
VoA:												
Votaw-----------------	0-4	0-5	1.00-1.35	2-6	0.05-0.08	0.0-0.8	1.0-2.0	.15	.15	5	1	220
	4-29	0-5	1.50-1.60	2-6	0.05-0.08	0.0-0.8	0.0-0.5	.15	.15			
	29-63	0-5	1.50-1.60	2-6	0.05-0.08	0.0-0.8	0.0-0.5	.15	.15			
	63-80	0-5	1.40-1.60	2-6	0.05-0.08	0.0-0.8	0.0-0.5	.15	.15			
W:												
Water-----------------	---	---	---	---	---	---	---	---	---	--	---	---
WbA:												
Waller----------------	0-4	4-13	1.35-1.50	0.1-1	0.15-0.20	0.0-2.9	1.0-3.5	.43	.43	5	5	56
	4-15	5-13	1.55-1.75	0.1-1	0.15-0.20	0.0-2.9	0.5-1.0	.55	.55			
	15-26	7-20	1.55-1.75	0.01-1	0.15-0.20	0.0-2.9	0.2-0.5	.55	.55			
	26-37	17-27	1.55-1.75	0.01-0.1	0.15-0.20	0.0-2.9	0.1-0.3	.49	.49			
	37-80	19-34	1.65-1.80	0.01-0.1	0.15-0.20	0.0-2.9	0.1-0.3	.37	.37			
Dallardsville---------	0-7	1-10	1.35-1.45	0.1-1	0.11-0.24	0.5-3.0	0.5-1.5	.55	.55	5	3	86
	7-20	1-10	1.35-1.45	0.1-1	0.11-0.24	0.5-4.0	0.2-1.0	.55	.55			
	20-31	2-14	1.45-1.60	0.01-1	0.11-0.24	0.2-5.9	0.1-0.5	.64	.64			
	31-38	5-16	1.55-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.64	.64			
	38-80	9-23	1.55-1.70	0.01-1	0.11-0.24	0.5-5.9	0.1-0.3	.55	.55			
WcB:												
Wiergate--------------	0-28	50-80	1.20-1.45	0.00-0.06	0.15-0.18	9.0-25.0	1.0-4.0	.32	.32	5	4	86
	28-79	60-80	1.35-1.55	0.00-0.06	0.08-0.14	9.0-25.0	0.2-0.5	.32	.32			
WnB:												
Woodville-------------	0-8	5-18	1.20-1.40	0.6-2	0.13-0.18	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	8-22	40-60	1.40-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.32	.32			
	22-80	30-60	1.40-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.32	.32			
WnD:												
Woodville-------------	0-7	5-18	1.20-1.40	0.6-2	0.13-0.18	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	7-51	40-60	1.40-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.32	.32			
	51-79	30-60	1.40-1.60	0.00-0.06	0.12-0.18	6.0-8.9	0.1-0.5	.32	.32			

Table 27.--Physical Soil Properties--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K-sat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
WnS:												
Woodville-----------	0-7	8-20	1.40-1.60	0.6-2	0.11-0.16	0.0-2.9	0.5-2.0	.37	.37	5	3	86
	7-21	30-45	1.35-1.55	0.06-0.2	0.13-0.18	3.0-5.9	0.1-1.0	.37	.37			
	21-49	35-50	1.25-1.50	0.00-0.06	0.10-0.16	6.0-8.9	0.1-1.0	.32	.32			
	49-80	20-45	1.30-1.55	0.00-0.06	0.10-0.16	6.0-8.9	0.1-0.5	.32	.32			
Sawlit--------------	0-20	6-18	1.35-1.50	2-6	0.11-0.16	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	20-33	18-30	1.35-1.50	0.6-2	0.13-0.18	0.0-2.9	0.3-1.0	.37	.37			
	33-54	20-35	1.30-1.55	0.6-2	0.13-0.18	3.0-5.9	0.3-1.0	.37	.37			
	54-80	35-50	1.20-1.45	0.00-0.06	0.12-0.17	6.0-8.9	0.3-1.0	.32	.32			

Table 28.--Chemical Soil Properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
AaB:								
Alazan	0-18	---	2.0-10	4.5-6.0	0	0	0.0-2.0	0
	18-80	5.0-15	---	4.5-6.5	0	0	0.0-2.0	0
BcA:								
Belrose	0-6	2.0-6.0	0.2-3.6	4.5-5.5	0	0	0.0-1.0	0-2
	6-16	2.0-6.0	0.2-5.3	4.5-5.5	0	0	0.0-1.0	0-2
	16-27	2.0-6.0	1.2-5.1	4.5-5.5	0	0	0.0-1.0	0-2
	27-42	2.0-8.0	1.2-5.0	4.5-5.5	0	0	0.0-1.0	0-4
	42-80	4.0-12	2.0-10	4.5-5.5	0	0	0.0-1.0	0-4
Caneyhead	0-4	5.0-10	1.0-7.0	3.5-5.0	0	0	0.0-2.0	0-2
	4-18	3.0-10	1.0-7.0	3.5-5.0	0	0	0.0-2.0	0-2
	18-29	6.0-15	3.0-10	3.5-5.0	0	0	0.0-2.0	0-2
	29-63	10-20	5.0-15	3.5-5.0	0	0	0.0-4.0	0-4
	63-80	5.0-15	3.0-10	3.5-5.0	0	0	0.0-4.0	2-6
BiB:								
Belrose	0-5	2.0-6.0	0.2-3.6	4.5-5.5	0	0	0.0-1.0	0-2
	5-20	2.0-6.0	0.2-5.3	4.5-5.5	0	0	0.0-1.0	0-2
	20-44	2.0-6.0	1.2-5.1	4.5-5.5	0	0	0.0-1.0	0-2
	44-63	2.0-8.0	1.2-5.0	4.5-5.5	0	0	0.0-1.0	0-4
	63-80	4.0-12	2.0-10	4.5-5.5	0	0	0.0-1.0	0-4
BoB:								
Boykin	0-8	1.0-5.0	---	4.5-6.5	0	0	0.0-2.0	0
	8-28	1.0-5.0	---	4.5-6.5	0	0	0.0-2.0	0
	28-80	---	10-20	4.5-6.0	0	0	0.0-2.0	0
BrC:								
Browndell	0-4	1.0-5.0	---	4.5-6.5	0	0	0	0
	4-14	---	25-45	4.5-6.0	0	0	0.0-4.0	0-4
	14-30	---	---	---	---	---	---	---
Kitterll	0-14	3.0-15	---	5.1-6.5	0	0	0.0-2.0	0
	14-20	---	---	---	---	---	---	---
BrD:								
Browndell	0-9	1.0-5.0	---	4.5-6.5	0	0	0	0
	9-17	---	25-45	4.5-6.0	0	0	0.0-4.0	0-4
	17-37	---	---	---	---	---	---	---
Kitterll	0-8	3.0-15	---	5.1-6.5	0	0	0.0-2.0	0
	8-15	---	---	---	---	---	---	---
BrG:								
Browndell	0-4	1.0-5.0	---	4.5-6.5	0	0	0	0
	4-15	---	25-45	4.5-6.0	0	0	0.0-4.0	0-4
	15-30	---	---	---	---	---	---	---
Kitterll	0-13	3.0-15	---	5.1-6.5	0	0	0.0-2.0	0
	13-20	---	---	---	---	---	---	---
BuB:								
Burkeville	0-14	50-70	---	7.9-8.4	2-10	0	0.0-2.0	0
	14-80	50-70	---	7.9-8.4	2-10	0	0.0-2.0	0

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
BuD:								
Burkeville-----------	0-9	50-70	---	7.9-8.4	2-10	0	0.0-2.0	0
	9-79	50-70	---	7.9-8.4	2-10	0	0.0-2.0	0
CgA:								
Chambliss------------	0-5	0.0-5.8	---	4.5-6.5	0	0	0.0-2.0	0
	5-80	---	2.0-8.0	3.6-6.5	0	0	0.0-2.0	0
CiA:								
Choates--------------	0-7	1.0-5.0	---	5.1-6.5	0	0	0	0
	7-22	1.0-5.0	---	5.1-6.5	0	0	0	0
	22-79	---	10-20	3.5-5.5	0	0	0	0
CkB:								
Colita---------------	0-25	---	1.0-5.0	4.5-6.0	0	0	0	0
	25-38	---	1.0-5.0	4.5-6.0	0	0	0	0
	38-48	---	3.0-10	4.5-6.0	0	0	0.0-2.0	0-4
	48-56	---	5.0-15	4.5-6.0	0	0-2	0.0-2.0	0-4
	56-80	---	---	---	---	---	---	---
CkC:								
Colita---------------	0-6	---	1.0-5.0	4.5-6.0	0	0	0	0
	6-28	---	1.0-5.0	4.5-6.0	0	0	0	0
	28-38	---	3.0-10	4.5-6.0	0	0	0.0-2.0	0-4
	38-51	---	5.0-15	4.5-6.0	0	0-2	0.0-2.0	0-4
	51-71	---	---	---	---	---	---	---
Laska----------------	0-28	---	2.0-5.0	3.5-6.0	0	0	0.0-2.0	0
	28-58	---	4.0-8.0	4.5-6.0	0	0	0.0-2.0	0
	58-69	2.0-8.0	---	5.1-7.3	0	0	0.0-2.0	0
CmB:								
Colmesneil-----------	0-7	---	1.0-5.0	4.5-6.0	0	0	0.0-2.0	0
	7-29	---	1.0-5.0	4.5-6.0	0	0	0.0-2.0	0
	29-79	---	1.0-5.0	4.5-6.0	0	0	0.0-2.0	0
CoB:								
Corrigan-------------	0-6	---	15-25	4.5-6.0	0	0	0	0
	6-33	---	25-40	3.6-5.5	0-2	0	0.0-2.0	0-4
	33-40	---	---	---	---	---	---	---
CoE:								
Corrigan-------------	0-6	---	15-25	4.5-6.0	0	0	0	0
	6-33	---	25-40	3.6-5.5	0-2	0	0.0-2.0	0-4
	33-40	---	---	---	---	---	---	---
CyA:								
Cypress--------------	0-12	---	15-32	3.5-5.0	0	0	0.0-2.0	0-2
	12-17	---	15-35	3.5-5.0	0	0	0.0-2.0	0-2
	17-80	---	15-35	3.5-5.0	0	0	0.0-2.0	0-2
DoB:								
Doucette-------------	0-6	1.0-5.0	---	5.1-6.0	0	0	0.0-2.0	0
	6-34	1.0-5.0	---	5.1-6.0	0	0	0.0-2.0	0
	34-79	---	10-15	4.5-5.5	0	0	0.0-2.0	0

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
EtA:								
Estes	0-5	---	20-35	4.5-6.0	0	0	0.0-2.0	1-5
	5-10	---	20-35	4.5-6.0	0	0	0.0-2.0	1-5
	10-43	---	20-35	4.5-6.0	0	0	0.0-2.0	1-5
	43-80	20-61	20-35	4.5-6.0	0	0	0.0-2.0	1-5
Angelina	0-4	---	10-25	3.5-5.0	0	0	0	0
	4-10	---	10-25	3.5-5.0	0	0	0	0
	10-21	---	10-25	3.5-5.0	0	0	0	0
	21-30	---	10-25	3.5-5.0	0	0	0	0
	30-46	---	10-25	3.5-5.0	0	0	0	0
	46-67	---	10-25	3.5-5.0	0	0	0	0
	67-80	---	10-25	3.5-5.0	0	0	0	0
EvA:								
Evadale	0-3	5.0-15	2.0-8.0	3.5-5.5	0	0	0.0-0.2	0-4
	3-10	5.0-15	2.0-8.0	3.5-5.5	0	0	0.0-0.2	0-4
	10-20	7.0-20	8.0-15	3.5-5.0	0	0	0.0-0.5	0-8
	20-42	10-20	8.0-15	3.5-6.0	0	0	0.0-1.5	4-16
	42-80	15-25	10-20	3.5-6.0	0	0-2	0.0-2.0	6-20
GPI:								
Pits, gravel	0-8	---	---	---	0	0	0	0
	8-42	---	---	---	---	---	---	---
HaA:								
Hainesville	0-7	5.0-15	---	4.5-6.5	0	0	0	0
	7-22	2.0-15	---	4.5-6.5	0	0	0	0
	22-80	---	2.0-15	4.5-6.0	0	0	0	0
HhD:								
Hillister	0-6	---	1.0-5.0	4.5-6.0	0	0	0	0
	6-28	---	1.0-5.0	4.5-6.0	0	0	0	0
	28-50	---	5.0-20	3.5-5.5	0	0	0	0
	50-79	---	5.0-20	3.5-5.5	0	0	0	0
IbA:								
Iulus	0-3	---	1.5-7.7	3.5-5.0	0	0	0.0-1.0	0-2
	3-23	---	1.5-7.7	3.5-5.0	0	0	0.0-1.0	0-2
	23-52	---	1.5-10	3.5-5.0	0	0	0.0-1.0	0-2
	52-80	---	2.7-11	3.5-5.0	0	0	0.0-1.0	0-2
Bleakwood	0-3	---	3.3-10	4.5-5.5	0	0	0	0
	3-33	---	3.3-14	4.5-5.5	0	0	0	0
	33-64	---	3.3-14	4.5-5.5	0	0	0	0
	64-80	---	3.3-14	4.5-5.5	0	0	0	0
JhA:								
Jayhawker	0-6	1.0-7.0	1.0-3.0	3.5-5.0	0	0	0.1-0.8	2-4
	6-36	1.0-7.0	1.0-3.0	3.5-5.0	0	0	0.1-0.7	2-4
	36-69	1.0-7.0	1.0-5.0	3.5-5.0	0	0	0.1-0.7	2-4
	69-80	1.0-7.0	1.0-5.0	3.5-5.0	0	0	0.1-0.7	2-4

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
KeB:								
Kenefick	0-5	2.0-9.0	0.0-5.0	4.5-6.0	0	0	0.0-1.0	0
	5-10	2.0-9.0	0.0-5.0	4.5-6.0	0	0	0.0-1.0	0
	10-25	2.0-9.0	0.0-7.0	4.5-6.0	0	0	0.0-1.0	0-2
	25-46	5.0-12	0.0-10	4.5-6.0	0	0	0.0-1.0	0-2
	46-77	4.0-10	0.0-7.0	4.5-6.0	0	0	0.0-1.0	0-2
	77-80	3.0-9.0	0.0-6.0	4.5-6.0	0	0	0.0-1.0	0-2
KfA:								
Kenefick	0-3	7.0-20	2.0-10	4.5-6.0	0	0	0.0-2.0	0
	3-26	7.0-20	2.0-10	4.5-6.0	0	0	0.0-2.0	0
	26-55	15-35	15-35	4.5-6.0	0	0	0.0-2.0	0
	55-80	10-20	10-20	4.5-6.0	0	0	0.0-2.0	0
Caneyhead	0-4	5.0-10	1.0-7.0	3.5-5.0	0	0	0.0-2.0	0-2
	4-18	3.0-10	1.0-7.0	3.5-5.0	0	0	0.0-2.0	0-2
	18-29	6.0-15	3.0-10	3.5-5.0	0	0	0.0-2.0	0-2
	29-63	10-20	5.0-15	3.5-5.0	0	0	0.0-4.0	0-4
	63-80	5.0-15	3.0-10	3.5-5.0	0	0	0.0-4.0	2-6
KgA:								
Kirbyville	0-8	3.0-10	0.0-5.0	4.5-6.0	0	0	0.0-0.5	0-1
	8-20	2.0-8.0	0.0-2.5	4.5-6.0	0	0	0.0-0.5	0-1
	20-26	2.0-7.0	1.0-4.0	4.5-5.5	0	0	0.0-0.5	0-2
	26-35	2.0-7.0	1.0-4.0	4.5-5.5	0	0	0.0-0.5	0-2
	35-74	4.0-9.0	2.0-6.0	4.5-5.5	0	0	0.0-0.5	0-2
	74-80	4.0-9.0	2.0-6.0	4.5-5.5	0	0	0.0-0.5	0-2
Niwana	0-6	1.0-10	1.0-5.0	4.5-6.0	0	0	0.0-0.3	0-2
	6-14	1.0-8.0	0.5-5.0	4.5-6.0	0	0	0.0-0.3	0-2
	14-35	1.0-8.0	1.0-7.0	4.5-6.0	0	0	0.0-0.3	0-2
	35-80	1.0-10	1.0-8.0	4.5-6.0	0	0	0.0-0.3	0-2
KiB:								
Kirbyville	0-6	3.0-10	0.0-3.0	4.5-6.0	0	0	0.0-0.5	0-1
	6-13	2.0-8.0	0.0-2.5	4.5-6.0	0	0	0.0-0.5	0-1
	13-19	2.0-7.0	1.0-4.0	4.5-5.5	0	0	0.0-0.5	0-2
	19-56	4.0-9.0	2.0-6.0	4.5-5.5	0	0	0.0-0.5	0-2
	56-80	4.0-9.0	2.0-6.0	4.5-5.5	0	0	0.0-0.5	0-2
KnB:								
Kountze	0-6	3.0-8.0	1.0-3.0	4.5-5.5	0	0	0.2-0.6	0-3
	6-17	2.0-6.0	0.9-3.0	4.5-5.5	0	0	0.1-0.4	0-3
	17-25	2.0-6.0	0.9-3.0	4.5-5.5	0	0	0.1-0.4	0-3
	25-54	2.0-7.0	1.0-4.0	4.5-5.5	0	0	0.1-0.4	0-3
	54-80	2.0-7.0	1.0-4.0	4.5-5.5	0	0	0.1-0.4	0-3
KoA:								
Koury	0-37	---	5.0-15	3.5-5.5	0	0	0.0-2.0	0-2
	37-53	---	5.0-15	3.5-5.0	0	0-2	0.0-2.0	2-6
	53-80	---	5.0-15	3.5-5.0	0	0-2	1.0-4.0	4-12
Lb:								
Laneville	0-21	5.0-15	---	5.1-6.5	0	0	0	0
	21-38	---	10-20	3.6-5.5	0	0	0.0-2.0	0-2
	38-80	---	15-30	3.6-6.0	0	0	0.0-4.0	0-4

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
LcB:								
Laska----------------	0-20	---	2.0-5.0	3.5-6.0	0	0	0.0-2.0	0
	20-65	---	4.0-8.0	4.5-6.0	0	0	0.0-2.0	0
	65-72	2.0-8.0	---	5.1-7.3	0	0	0.0-2.0	0
LvA:								
Lelavale-------------	0-4	3.0-10	1.0-8.0	3.5-4.4	0	0	0.0-4.0	2-8
	4-12	3.0-15	2.0-11	3.5-4.4	0	0	0.0-4.0	2-8
	12-16	3.0-15	2.0-11	3.5-4.4	0	0	0.0-4.0	2-8
	16-41	7.0-25	5.0-21	3.5-4.4	0	0	0.0-4.0	2-8
	41-49	20-30	18-29	3.5-4.4	0	0	0.0-4.0	2-8
	49-80	15-30	15-29	3.5-4.4	0	0	0.0-4.0	2-8
MpA:								
Mollville------------	0-13	---	5.0-15	4.5-6.0	0	0	0.0-2.0	0-2
	13-43	---	15-25	4.5-6.0	0	0	0.0-4.0	2-10
	43-65	10-25	---	5.1-7.8	0-2	0-3	0.0-4.0	2-10
	65-80	5.0-10	---	5.1-7.8	0-2	0-3	0.0-4.0	2-10
Besner---------------	0-8	2.0-5.0	---	4.5-6.5	0	0	0	0
	8-30	2.0-5.0	---	4.5-6.5	0	0	0	0
	30-42	3.0-10	---	4.5-6.5	0	0	0	0
	42-80	3.0-10	---	4.5-6.5	0	0	0	0
NhB:								
Newco----------------	0-10	---	1.0-10	4.5-6.0	0	0	0	0
	10-48	---	20-30	4.5-5.5	0	0	0	0
	48-66	---	---	---	---	---	---	---
NhD:								
Newco----------------	0-4	---	1.0-10	4.5-6.0	0	0	0	0
	4-42	---	20-30	4.5-5.5	0	0	0	0
	42-79	---	---	---	---	---	---	---
NoA:								
Nona-----------------	0-3	2.0-6.0	1.0-4.0	3.5-5.0	0	0	0.2-1.3	2-7
	3-19	2.0-8.0	1.0-4.0	3.5-5.0	0	0	0.4-1.8	6-10
	19-38	7.0-16	4.0-12	3.5-5.0	0	0	0.6-2.0	6-10
	38-80	6.2-22	4.6-17	3.5-5.0	0	0	0.8-2.0	5-10
Dallardsville--------	0-5	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	5-28	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	28-38	1.0-6.0	0.5-5.0	3.5-5.5	0	0	0	0
	38-60	1.0-7.0	1.0-5.0	3.5-5.5	0	0	0.0-0.5	0-2
	60-80	1.0-8.0	1.0-5.0	3.5-5.0	0	0	0.0-0.5	0-4
OiA:								
Olive----------------	0-14	4.0-15	1.0-4.0	3.0-4.4	0	0	0.0-0.1	0-1
	14-22	2.0-8.0	0.5-3.0	3.0-4.4	0	0	0.0-0.1	0-1
	22-65	2.0-6.0	0.3-2.0	3.5-5.0	0	0	0.0-0.1	0-1
	65-80	2.0-4.0	0.1-1.5	3.5-5.5	0	0	0.0-0.1	0-1
Dallardsville--------	0-4	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	4-26	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	26-41	1.0-6.0	0.5-5.0	3.5-5.5	0	0	0	0
	41-63	1.0-7.0	1.0-5.0	3.5-5.5	0	0	0.0-0.5	0-2
	63-80	1.0-8.0	1.0-5.0	3.5-5.0	0	0	0.0-0.5	0-4

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
OtB:								
Otanya	0-6	3.0-10	1.0-5.0	4.5-5.5	0	0	0.0-0.4	0-2
	6-12	2.0-6.0	1.0-3.0	4.5-6.0	0	0	0.0-0.5	0-3
	12-19	2.0-6.0	1.0-3.0	4.5-6.0	0	0	0.0-0.5	0-3
	19-60	4.0-8.0	2.0-6.0	4.5-6.0	0	0	0.0-0.5	0-3
	60-80	4.0-9.0	2.0-7.0	4.5-6.0	0	0	0.0-0.6	0-3
OtC:								
Otanya	0-5	3.0-10	1.0-5.0	4.5-5.5	0	0	0.0-0.4	0-2
	5-11	2.0-6.0	1.0-3.0	4.5-6.0	0	0	0.0-0.5	0-3
	11-19	2.0-6.0	1.0-3.0	4.5-6.0	0	0	0.0-0.5	0-3
	19-59	4.0-8.0	2.0-6.0	4.5-6.0	0	0	0.0-0.5	0-3
	59-80	4.0-9.0	2.0-7.0	4.5-6.0	0	0	0.0-0.6	0-3
Oz:								
Ozias	0-6	---	25-45	3.6-5.0	0	0	0.0-8.0	0-4
	6-18	25-45	---	3.6-9.0	0	0-4	0.0-16.0	2-14
	18-80	---	25-45	3.6-6.0	0	2-10	2.0-16.0	2-14
Pophers	0-4	---	15-28	4.5-6.0	0	0-2	0.0-4.0	0-4
	4-80	---	7.0-20	3.5-5.5	0	0-4	0.0-4.0	2-12
PkA:								
Plank	0-3	2.0-8.0	1.0-4.0	3.5-4.4	0	0	0.3-2.0	2-10
	3-35	1.0-5.0	1.0-3.0	3.5-5.0	0	0	0.5-2.0	2-10
	35-80	1.0-5.0	1.0-3.0	4.5-5.5	0	0	0.8-2.0	2-10
PmB:								
Pinetucky	0-9	---	1.0-7.0	4.5-6.0	0	0	0	0
	9-38	---	10-20	4.5-5.5	0	0	0	0
	38-80	---	10-20	4.5-5.5	0	0	0	0
RaB:								
Rayburn	0-6	---	1.0-7.0	4.5-6.0	0	0	0	0
	6-52	---	25-35	3.5-5.5	0	0	0	0
	52-65	---	---	---	---	---	---	---
RaD:								
Rayburn	0-5	---	1.0-7.0	4.5-6.0	0	0	0	0
	5-52	---	25-35	3.5-5.5	0	0	0	0
	52-72	---	---	---	---	---	---	---
ReB:								
Redco	0-5	45-72	---	5.1-6.5	0	0	0.0-2.0	0
	5-10	---	54-72	4.5-6.0	0	0	0.0-2.0	0
	10-80	54-72	---	5.6-7.8	0	0	0.0-2.0	0
ReD:								
Redco	0-5	45-72	---	5.1-6.5	0	0	0.0-2.0	0
	5-26	---	54-72	4.5-6.0	0	0	0.0-2.0	0
	26-79	54-72	---	5.6-7.8	0	0	0.0-2.0	0
RrB:								
Rogan	0-20	1.0-5.0	---	5.1-6.0	0	0	0	0
	20-38	---	10-20	4.5-5.5	0	0	0	0
	38-72	---	10-20	4.5-5.5	0	0	0	0

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
RrF:								
Rogan	0-3	1.0-5.0	---	5.1-6.0	0	0	0	0
	3-37	---	10-20	4.5-5.5	0	0	0	0
	37-70	---	10-20	4.5-5.5	0	0	0	0
SeD:								
Sawlit	0-12	---	10-22	4.5-6.0	0	0	0	0
	12-25	---	20-40	4.5-6.0	0	0	0	0
	25-43	---	20-40	4.5-6.0	0	0	0	0
	43-80	---	35-50	3.5-5.5	0	0-5	0	0-4
Sawtown	0-19	---	2.0-15	4.5-6.0	0	0	0.0-2.0	0
	19-36	---	2.0-15	4.5-5.5	0	0	0.0-2.0	0
	36-49	---	2.0-15	4.5-5.5	0	0	0.0-2.0	0
	49-80	---	12-40	4.5-5.0	0	0	0.0-2.0	0
ShB:								
Shankler	0-52	1.0-5.0	---	4.5-6.5	0	0	0	0
	52-60	---	15-25	4.5-5.5	0	0	0	0
	60-79	---	10-20	4.5-5.5	0	0	0	0
ShD:								
Shankler	0-50	1.0-5.0	---	4.5-6.5	0	0	0	0
	50-70	---	15-25	4.5-5.5	0	0	0	0
	70-80	---	10-20	4.5-5.5	0	0	0	0
SiC:								
Silsbee	0-5	2.0-6.0	1.0-5.0	3.5-5.5	0	0	0	0
	5-15	2.0-5.0	1.0-4.0	3.5-5.5	0	0	0	0
	15-49	3.0-10	3.0-7.0	3.5-5.5	0	0	0	0-2
	49-58	3.0-10	2.0-7.0	3.5-5.5	0	0	0	0-2
	58-80	3.0-10	2.0-7.0	3.5-5.5	0	0	0.0-2.0	0-2
SiD:								
Silsbee	0-5	2.0-6.0	1.0-5.0	3.5-5.5	0	0	0	0
	5-15	2.0-5.0	1.0-4.0	3.5-5.5	0	0	0	0
	15-49	3.0-10	3.0-7.0	3.5-5.5	0	0	0	0-2
	49-58	3.0-10	2.0-7.0	3.5-5.5	0	0	0	0-2
	58-80	3.0-10	2.0-7.0	3.5-5.5	0	0	0.0-2.0	0-2
SnA:								
Sorter	0-3	5.0-10	1.0-6.0	3.5-5.5	0	0	0.0-0.3	0-6
	3-24	2.0-6.0	1.0-4.0	3.5-5.5	0	0	0.1-0.6	6-8
	24-78	2.0-6.0	1.0-4.0	4.5-6.5	0	0	0.3-1.0	6-10
	78-80	2.0-6.0	1.0-4.0	4.5-6.5	0	0	0.3-1.0	6-13
Dallardsville	0-5	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	5-22	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	22-31	1.0-6.0	0.5-5.0	3.5-5.5	0	0	0	0
	31-58	1.0-7.0	1.0-5.0	3.5-5.5	0	0	0.0-0.5	0-2
	58-80	1.0-8.0	1.0-5.0	3.5-5.0	0	0	0.0-0.5	0-4

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon-ate	Gypsum	Salinity	Sodium adsorp-tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
SsA:								
Spurger	0-5	1.0-5.0	---	4.5-6.0	0	0	0	0
	5-11	1.0-5.0	---	4.5-6.0	0	0	0	0
	11-58	---	20-30	4.5-6.0	0	0	0	0
	58-74	---	15-25	4.5-6.0	0	0	0	0
	74-80	4.0-10	---	4.5-6.0	0	0	0	0
Caneyhead	0-4	5.0-10	1.0-7.0	3.5-5.0	0	0	0.0-2.0	0-2
	4-18	3.0-10	1.0-7.0	3.5-5.0	0	0	0.0-2.0	0-2
	18-29	6.0-15	3.0-10	3.5-4.4	0	0	0.0-2.0	0-2
	29-46	10-20	5.0-15	3.5-5.0	0	0	0.0-4.0	0-4
	46-63	10-20	5.0-15	3.5-5.0	0	0	0.0-4.0	0-4
	63-80	5.0-15	3.0-10	4.5-5.0	0	0	0.0-4.0	2-6
StM:								
Stringtown	0-10	1.0-5.0	---	4.5-6.5	0	0	0	0
	10-58	---	10-20	4.5-6.0	0	0	0	0
	58-72	---	---	---	---	---	---	---
Bonwier	0-13	---	2.0-10	4.5-6.0	0	0	0	0
	13-34	---	20-30	4.5-5.5	0	0	0	0
	34-63	---	---	---	---	---	---	---
TuB:								
Turkey	0-5	1.9-5.0	1.0-3.0	4.5-5.0	0	0	0.0-2.0	0-5
	5-20	1.0-3.5	0.3-1.0	4.5-5.5	0	0	0.0-2.0	0-10
	20-80	0.6-1.1	0.1-0.9	4.5-5.5	0	0	0.0-2.0	0-10
TyA:								
Tyden	0-6	10-25	2.0-10	3.5-5.0	0	0	0	0
	6-13	3.0-7.0	1.0-6.0	3.5-5.0	0	0	0	0
	13-19	1.0-5.0	0.5-4.0	3.5-5.0	0	0	0	0
	19-41	1.0-8.0	0.5-4.0	3.5-5.0	0	0	0.0-2.0	0-2
	41-73	1.0-8.0	0.5-4.0	3.5-5.0	0	0	0.0-2.0	0-2
	73-80	1.0-10	1.0-4.0	3.5-5.0	0	0	0.0-2.0	0-2
Babco	0-8	5.0-12	1.0-7.0	3.5-5.0	0	0	0	0
	8-12	5.0-12	1.0-7.0	3.5-5.0	0	0	0	0
	12-16	0.2-5.0	0.2-2.0	3.5-5.0	0	0	0	0
	16-22	0.2-5.0	0.2-2.0	3.5-5.0	0	0	0.0-2.0	0
	22-55	1.0-5.0	0.5-2.0	3.5-5.0	0	0	0.0-2.0	0
	55-80	1.0-5.0	0.5-2.0	3.5-5.0	0	0	0.0-2.0	0
UrB:								
Urland	0-8	3.0-10	---	5.1-6.5	0	0	0.0-2.0	0
	8-29	---	15-25	4.5-5.5	0	0	0.0-2.0	0
	29-65	---	10-20	4.5-5.5	0	0	0.0-2.0	0
	65-80	---	---	---	---	---	---	---
VoA:								
Votaw	0-4	1.0-5.0	0.1-3.0	4.5-6.0	0	0	0.0-0.5	0-4
	4-29	1.0-3.0	0.1-1.0	4.5-6.0	0	0	0.0-0.5	2-6
	29-63	0.5-3.0	0.1-1.0	4.5-6.0	0	0	0.0-0.5	2-8
	63-80	0.5-2.0	0.1-1.0	4.5-6.0	0	0	0.0-0.5	2-8
W:								
Water	---	---	---	---	---	---	---	---

Table 28.--Chemical Soil Properties--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct	Pct	mmhos/cm	
WbA:								
Waller	0-4	3.0-8.0	1.0-6.0	3.5-5.5	0	0	0.0-0.2	0-2
	4-15	2.0-8.0	1.0-6.0	3.5-5.5	0	0	0.0-0.2	0-2
	15-26	2.0-12	1.0-6.0	3.5-5.5	0	0	0.0-0.3	0-2
	26-37	3.0-15	2.0-12	3.5-5.5	0	0	0.0-0.3	0-2
	37-80	2.0-20	2.0-15	3.5-5.5	0	0	0.0-0.3	0-2
Dallardsville	0-7	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	7-20	1.0-5.0	0.5-4.0	3.5-5.5	0	0	0	0
	20-31	1.0-6.0	0.5-5.0	3.5-5.5	0	0	0	0
	31-38	1.0-7.0	1.0-5.0	3.5-5.5	0	0	0.0-0.5	0-2
	38-80	1.0-8.0	1.0-5.0	3.5-5.0	0	0	0.0-0.5	0-4
WcB:								
Wiergate	0-28	25-40	---	6.6-7.8	0-5	0	0	0
	28-79	25-40	---	7.9-8.4	2-10	0	0	0
WnB:								
Woodville	0-8	1.0-10	---	4.5-6.5	0	0	0.0-2.0	0
	8-22	---	20-30	4.5-5.5	0	0	0.0-2.0	0
	22-80	20-30	---	5.1-8.4	0-2	0	0.0-2.0	0
WnD:								
Woodville	0-7	1.0-10	---	4.5-6.5	0	0	0.0-2.0	0
	7-51	---	20-30	4.5-5.5	0	0	0.0-2.0	0
	51-79	20-30	---	5.1-8.4	0-2	0	0.0-2.0	0
WnS:								
Woodville	0-7	5.0-15	---	4.5-6.5	0	0	0.0-2.0	0
	7-21	---	15-30	4.5-6.0	0	0	0.0-2.0	0
	21-49	---	15-30	4.5-6.0	0	0	0.0-4.0	0-6
	49-80	15-30	---	5.1-7.3	0-2	0-2	0.0-4.0	0-6
Sawlit	0-20	---	10-22	4.5-6.0	0	0	0	0
	20-33	---	20-40	4.5-6.0	0	0	0	0
	33-54	---	20-40	4.5-6.0	0	0	0	0
	54-80	---	35-50	3.5-5.5	0	0-5	0	0-4

Table 29.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
AaB:						
Alazan	---	---	---	---	High	Moderate
BcA:						
Belrose	---	---	---	---	Moderate	High
Caneyhead	---	---	---	---	High	High
BiB:						
Belrose	---	---	---	---	Moderate	High
BoB:						
Boykin	---	---	---	---	Moderate	High
BrC:						
Browndell	Paralithic bedrock	14-20	---	Strongly cemented	High	High
Kitterll	Paralithic bedrock	4-14	---	Strongly cemented	Low	Moderate
BrD:						
Browndell	Paralithic bedrock	14-20	---	Strongly cemented	High	High
Kitterll	Paralithic bedrock	4-14	---	Strongly cemented	Low	Moderate
BrG:						
Browndell	Paralithic bedrock	14-20	---	Strongly cemented	High	High
Kitterll	Paralithic bedrock	4-14	---	Strongly cemented	Low	Moderate
BuB:						
Burkeville	---	---	---	---	High	Low
BuD:						
Burkeville	---	---	---	---	High	Low
CgA:						
Chambliss	---	---	---	---	Low	Moderate
CiA:						
Choates	---	---	---	---	High	High
CkB:						
Colita	Paralithic bedrock	40-60	---	Moderately cemented	High	Moderate

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
CkC:						
Colita	Paralithic bedrock	40-60	---	Strongly cemented	High	Moderate
Laska	Paralithic bedrock	40-60	---	Moderately cemented	Moderate	High
CmB:						
Colmesneil	---	---	---	---	Low	Moderate
CoB:						
Corrigan	Paralithic bedrock	20-40	---	Strongly cemented	High	High
CoE:						
Corrigan	Paralithic bedrock	20-40	---	Strongly cemented	High	High
CyA:						
Cypress	---	---	---	---	Moderate	High
DoB:						
Doucette	---	---	---	---	Moderate	High
EtA:						
Estes	---	---	---	---	High	High
Angelina	---	---	---	---	High	High
EvA:						
Evadale	---	---	---	---	High	High
GPI:						
Pits, gravel	---	---	---	---	Moderate	Low
HaA:						
Hainesville	---	---	---	---	Low	High
HhD:						
Hillister	Dense material	40-63	---	Noncemented	Moderate	Moderate
IbA:						
Iulus	---	---	---	---	Moderate	High
Bleakwood	---	---	---	---	High	High
JhA:						
Jayhawker	Fragipan	65-70	10-21	Noncemented	High	High
KeB:						
Kenefick	---	---	---	---	Moderate	Moderate
KfA:						
Kenefick	---	---	---	---	Moderate	High
Caneyhead	---	---	---	---	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In			
KgA:						
Kirbyville	---	---	---	---	Moderate	Moderate
Niwana	---	---	---	---	Moderate	Moderate
KiB:						
Kirbyville	---	---	---	---	Moderate	Moderate
KnB:						
Kountze	---	---	---	---	Moderate	High
KoA:						
Koury	---	---	---	---	High	High
Lb:						
Laneville	---	---	---	---	High	High
LcB:						
Laska	Dense material	60-71	---	Noncemented	Moderate	High
LvA:						
Lelavale	---	---	---	---	High	Moderate
MpA:						
Mollville	---	---	---	---	High	High
Besner	---	---	---	---	Low	Moderate
NhB:						
Newco	Dense material	40-60	---	Noncemented	High	High
NhD:						
Newco	Dense material	40-60	---	Noncemented	High	High
NoA:						
Nona	---	---	---	---	High	High
Dallardsville	---	---	---	---	High	High
OiA:						
Olive	Fragipan	20-36	---	Noncemented	High	High
Dallardsville	---	---	---	---	High	High
OtB:						
Otanya	---	---	---	---	High	High
OtC:						
Otanya	---	---	---	---	High	High
Oz:						
Ozias	---	---	---	---	High	High
Pophers	---	---	---	---	High	High
PkA:						
Plank	---	---	---	---	High	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
PmB:						
Pinetucky	---	---	---	---	High	High
RaB:						
Rayburn	Paralithic bedrock	40-60	---	Strongly cemented	High	High
RaD:						
Rayburn	Paralithic bedrock	40-60	---	Strongly cemented	High	High
ReB:						
Redco	---	---	---	---	High	Moderate
ReD:						
Redco	---	---	---	---	High	Moderate
RrB:						
Rogan	---	---	---	---	Moderate	High
RrF:						
Rogan	---	---	---	---	Moderate	High
SeD:						
Sawlit	---	---	---	---	High	High
Sawtown	---	---	---	---	Moderate	High
ShB:						
Shankler	---	---	---	---	Low	High
ShD:						
Shankler	---	---	---	---	Low	High
SiC:						
Silsbee	---	---	---	---	Moderate	High
SiD:						
Silsbee	---	---	---	---	Moderate	High
SnA:						
Sorter	---	---	---	---	High	High
Dallardsville	---	---	---	---	High	High
SsA:						
Spurger	---	---	---	---	High	High
Caneyhead	---	---	---	---	High	High
StM:						
Stringtown	Dense material	40-60	---	Noncemented	Moderate	High
Bonwier	Dense material	20-40	---	Noncemented	High	High
TuB:						
Turkey	---	---	---	---	Low	High

Table 29.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Uncoated steel	Concrete
		In	In			
TyA:						
Tyden	---	---	---	---	High	High
Babco	---	---	---	---	High	High
UrB:						
Urland	Dense material	40-60	---	Noncemented	High	High
VoA:						
Votaw	---	---	---	---	High	Moderate
W:						
Water	---	---	---	---	---	---
WbA:						
Waller	---	---	---	---	High	Moderate
Dallardsville	---	---	---	---	High	High
WcB:						
Wiergate	---	---	---	---	High	Low
WnB:						
Woodville	---	---	---	---	High	High
WnD:						
Woodville	---	---	---	---	High	High
WnS:						
Woodville	---	---	---	---	High	High
Sawlit	---	---	---	---	High	High

Table 30.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
AaB:										
Alazan	C	Very low	Jan-Apr	1.5-2.5	>6.0	---	---	None	---	None
			May-Dec	---	---	---	---	None	---	None
BcA:										
Belrose	B	Negligble	Jan-May	2.3-3.0	3.0-5.5	---	---	None	---	None
			Jun-Sep	---	---	---	---	None	---	None
			Oct-Dec	2.3-3.0	3.0-5.5	---	---	None	---	None
Caneyhead	D	Negligble	Jan-Jun	0.0	0.3-1.0	0.0-0.5	Long	Frequent	---	None
			Jul-Nov	---	---	---	---	None	---	None
			Dec	0.0	1.0-1.6	0.0-0.5	Long	Frequent	---	None
BiB:										
Belrose	B	Negligible	Jan-May	2.3-3.0	3.0-5.5	---	---	None	---	None
			Jun-Sep	---	---	---	---	None	---	None
			Oct-Dec	2.3-3.0	3.0-5.5	---	---	None	---	None
BoB:										
Boykin	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
BrC:										
Browndell	D	Very high								
			Jan-Dec	---	---	---	---	None	---	None
Kitterll	D	Low								
			Jan-Dec	---	---	---	---	None	---	None
BrD:										
Browndell	D	Very high								
			Jan-Dec	---	---	---	---	None	---	None
Kitterll	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
BrG:										
Browndell------------------	D	Very high								
			Jan-Dec	---	---	---	---	None	---	None
Kitterll------------------	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
BuB:										
Burkeville----------------	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
BuD:										
Burkeville----------------	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
CgA:										
Chambliss-----------------	A	Very low								
			Jan-Dec	---	---	---	---	None	---	None
CiA:										
Choates-------------------	C	Low								
			Jan-Mar	1.5-2.5	>6.0	---	---	None	---	None
			Apr-Dec	---	---	---	---	None	---	None
CkB:										
Colita--------------------	D	Negligible								
			Jan-Apr	0.5-2.0	2.5-4.5	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.5-2.0	2.5-4.5	---	---	None	---	None
CkC:										
Colita--------------------	D	Negligible								
			Jan-Apr	0.5-2.0	2.5-4.5	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.5-2.0	2.5-4.5	---	---	None	---	None
Laska---------------------	B	Negligible								
			Jan-Apr	1.5-3.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	1.5-3.0	>6.0	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
CmB:										
Colmesneil	A	Very low	Jan-Dec	---	---	---	---	None	---	None
CoB:										
Corrigan	D	Very high								
			Jan-Mar	1.0-2.5	1.5-3.5	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	1.0-2.5	1.5-3.5	---	---	None	---	None
CoE:										
Corrigan	D	Very high								
			Jan-Mar	1.0-2.5	1.5-3.5	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	1.0-2.5	1.5-3.5	---	---	None	---	None
CyA:										
Cypress	D	Negligible								
			Jan-Dec	0.0	>6.0	0.0-4.0	Very long	Frequent	Very long	Frequent
DoB:										
Doucette	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
EtA:										
Estes	D	Low								
			Jan-May	0.0-1.5	0.5-2.0	---	---	None	Long	Frequent
			Jun-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.5	0.5-2.0	---	---	None	Long	Frequent
Angelina	D	Negligible								
			Jan-Jun	0.0	>6.0	0.0-2.0	Very long	Occasional	Very long	Frequent
			Jul-Sep	---	---	---	---	None	---	None
			Oct-Dec	0.0	>6.0	0.0-2.0	Very long	Occasional	Very long	Frequent
EvA:										
Evadale	D	Low								
			Jan-Apr	0.0-1.5	0.0-3.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	0.0-1.5	0.0-3.0	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
GPI:										
Pits	D	---								
			Jan-Dec	---	---	---	---	None	---	None
HaA:										
Hainesville	A	Negligible								
			Jan-Apr	4.0-6.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	4.0-6.0	>6.0	---	---	None	---	None
HhD:										
Hillister	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
IbA:										
Iulus	B	Low								
			Jan-Apr	1.5-4.0	2.0-5.0	---	---	None	Very brief	Frequent
			May-Nov	---	---	---	---	None	---	None
			Dec	1.5-4.0	2.0-5.0	---	---	None	Very brief	Frequent
Bleakwood	C	Low								
			Jan-Apr	0.0-1.5	>6.0	---	---	None	Long	Frequent
			May-Oct	0.0-1.5	>6.0	---	---	None	---	---
			Nov-Dec	0.0-1.5	>6.0	---	---	None	Long	Frequent
JhA:										
Jayhawker	D	Negligible								
			Jan-Mar	1.0-1.5	1.5-4.0	0.0-0.5	Long	Frequent	---	---
			Jun-Oct	1.0-1.5	1.5-4.0	---	---	None	---	---
			Nov-Dec	1.0-1.5	1.5-4.0	0.0-0.5	Long	Frequent	---	---
KeB:										
Kenefick	B	Low								
			Jan-Dec	6.0	>6.0	---	---	None	---	None
KfA:										
Kenefick	B	Negligible								
			Jan-Dec	6.0	>6.0	---	---	None	---	None
Caneyhead	D	Negligible								
			Jan-Jun	0.0	0.3-1.0	0.0-0.5	Long	Frequent	---	None
			Jul-Nov	---	---	---	---	---	---	None
			Dec	0.0	1.0-1.6	0.0-0.5	Long	Frequent	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
KgA:										
Kirbyville----------------	B	Low								
			Jan-Mar	1.5-2.5	2.0-3.3	---	---	None	---	None
			Apr-Dec	---	---	---	---	None	---	None
Niwana--------------------	B	Low								
			Jan-Feb	4.0-6.0	>6.0	---	---	None	---	None
			Mar-Dec	---	---	---	---	None	---	None
KiB:										
Kirbyville----------------	B	Low								
			Jan-Mar	1.5-2.5	2.0-3.3	---	---	None	---	None
			Apr-Dec	---	---	---	---	None	---	None
KnB:										
Kountze-------------------	B	Low								
			Jan-Mar	1.5-2.0	2.0-3.3	---	---	None	---	None
			Apr-Dec	---	---	---	---	None	---	None
KoA:										
Koury---------------------	B	Low								
			Jan-May	---	---	---	---	None	Brief	Frequent
			Jun-Dec	---	---	---	---	---	---	None
Lb:										
Laneville-----------------	B	Low								
			Jan-May	1.5-3.0	2.5-4.0	---	---	None	Brief	Frequent
			Nov-Dec	1.5-3.0	2.5-4.0	---	---	None	Brief	Frequent
LcB:										
Laska---------------------	B	Negligible								
			Jan-Apr	1.5-3.0	>6.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	1.5-3.0	>6.0	---	---	None	---	None
LvA:										
Lelavale------------------	D	Negligible								
			Jan-Apr	0.0	>6.0	0.0-1.0	Very long	Frequent	---	None
			May-Jun	0.0	>6.0	---	---	---	---	None
			Jul-Sep	---	---	---	---	---	---	None
			Oct	---	---	0.0-1.0	Very long	Frequent	---	None
			Nov-Dec	0.0	>6.0	0.0-1.0	Very long	Frequent	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
MpA:										
Mollville	D	Low								
			Jan-Jun	0.0	>6.0	0.0-0.5	Long	Frequent	---	None
			Jul-Oct	---	---	---	---	---	---	None
			Nov-Dec	0.0	>6.0	0.0-0.5	Long	Frequent	---	None
Besner	B	Negligible								
			Jan-Feb	4.0-6.0	>6.0	---	---	None	---	None
			Mar-Dec	---	---	---	---	None	---	None
NhB:										
Newco	D	Low								
			Jan-Dec	---	---	---	---	None	---	None
NhD:										
Newco	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
NoA:										
Nona	D	Negligible								
			Jan-Apr	0.0	0.5-1.0	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov	0.0	0.5-1.0	---	---	None	---	None
			Dec	0.0	>6.0	---	---	None	---	None
Dallardsville	B	Low								
			Jan-Mar	3.0-4.0	3.0-4.0	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	3.0-4.0	3.0-4.0	---	---	None	---	None
OiA:										
Olive	D	Negligible								
			Jan-May	0.0	0.5-2.0	0.5-1.5	Long	Frequent	---	None
			Jun-Sep	---	---	---	---	None	---	None
			Nov-Dec	0.0	0.5-2.0	0.5-1.5	Long	Frequent	---	None
Dallardsville	B	Low								
			Jan-Mar	3.0-4.0	3.0-4.0	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	3.0-4.0	3.0-4.0	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
OtB:										
Otanya	B	Very low								
			Jan-Mar	4.5-5.0	5.0-6.0	---	---	None	---	None
			Apr-Dec	---	---	---	---	None	---	None
OtC:										
Otanya	B	Low								
			Jan-Mar	4.5-5.0	5.0-6.0	---	---	None	---	None
			Apr-Dec	---	---	---	---	None	---	None
Oz:										
Ozias	D	Low								
			Jan-May	0.0-1.5	0.5-2.0	---	---	None	Long	Frequent
			Jun-Oct	0.0-1.5	0.5-2.0	---	---	None	---	---
			Dec	0.0-1.5	0.5-2.0	---	---	None	Long	Frequent
Pophers	C	Low								
			Jan-May	1.0-2.0	>6.0	---	---	None	Long	Frequent
			Jun	---	---	---	---	None	Long	Frequent
			Jul-Nov	---	---	---	---	None	---	None
			Dec	1.0-2.0	>6.0	---	---	None	---	---
PkA:										
Plank	D	Low								
			Jan-May	0.0-0.5	0.5-3.5	---	---	None	---	None
			Jun-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-0.5	0.5-3.5	---	---	None	---	None
PmB:										
Pinetucky	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
RaB:										
Rayburn	D	Low								
			Jan	0.0	2.5-4.5	---	---	None	---	None
			Feb	2.5-4.5	3.5-5.0	---	---	None	---	None
			Mar-Nov	---	---	---	---	None	---	None
			Dec	2.5-4.5	3.5-5.0	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
RaD:										
Rayburn-------------------	D	Very high								
			Jan	---	---	---	---	None	---	None
			Feb	2.5-4.5	3.5-5.0	---	---	None	---	None
			Mar-Nov	---	---	---	---	None	---	None
			Dec	2.5-4.5	3.5-5.0	---	---	None	---	None
ReB:										
Redco---------------------	D	Very low								
			Jan-Dec	---	---	---	---	None	---	None
ReD:										
Redco---------------------	D	Low								
			Jan-Dec	---	---	---	---	None	---	None
RrB:										
Rogan---------------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
RrF:										
Rogan---------------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
SeD:										
Sawlit--------------------	C	Medium								
			Jan-May	2.0-3.5	2.5-4.0	---	---	None	---	None
			Jun-Dec	---	---	---	---	None	---	None
Sawtown-------------------	C	Medium								
			Jan-Apr	3.0-4.5	3.5-5.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	3.0-4.5	3.5-5.0	---	---	None	---	None
ShB:										
Shankler------------------	A	Low								
			Jan-Dec	---	---	---	---	None	---	None
ShD:										
Shankler------------------	A	Low								
			Jan-Dec	---	---	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
SiC:										
Silsbee	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
SiD:										
Silsbee	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
SnA:										
Sorter	D	Negligible								
			Jan-Mar	0.0	0.5-1.5	0.0-0.5	Long	Frequent	---	None
			Apr-May	0.0	0.5-1.5	---	---	None	---	None
			Jun-Oct	---	---	---	---	None	---	None
			Nov	0.0	0.5-1.5	---	---	None	---	None
			Dec	0.0	0.5-1.5	0.0-0.5	Long	Frequent	---	None
Dallardsville	B	Low								
			Jan-Mar	3.0-4.0	3.0-4.0	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	3.0-4.0	3.0-4.0	---	---	None	---	None
SsA:										
Spurger	C	High								
			Jan-Feb	5.0-6.0	>6.0	---	---	None	---	None
			Mar-Nov	---	---	---	---	None	---	None
			Dec	5.0-6.0	>6.0	---	---	None	---	None
Caneyhead	D	Negligble								
			Jan-Jun	0.0	0.3-1.0	0.0-0.5	Long	Frequent	---	None
			Jul-Nov	---	---	---	---	None	---	None
			Dec	0.0	1.0-1.6	0.0-0.5	Long	Frequent	---	None
StM:										
Stringtown	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Bonwier	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
TuB:										
Turkey	A	Negligible								
			Jan-Dec	6.7	>6.0	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
TyA:										
Tyden	D	Low								
			Jan-Apr	0.0-1.0	1.0-5.0	0.0-1.5	Long	Frequent	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	0.0-1.0	1.0-5.0	0.0-1.5	Long	Frequent	---	None
Babco	C	Medium								
			Jan-Apr	2.0-3.0	2.5-3.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	2.0-3.0	2.5-3.0	---	---	None	---	None
UrB:										
Urland	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
VoA:										
Votaw	B	Negligible								
			Jan-Mar	2.0-2.5	2.5-3.0	---	---	None	---	Rare
			Apr-Nov	---	---	---	---	None	---	Rare
			Dec	2.0-2.5	2.5-3.0	---	---	None	---	Rare
W:										
Water	---	---								
			Jan-Dec	---	---	---	---	None	---	---
WbA:										
Waller	D	Negligible								
			Jan-Mar	0.5-1.5	2.0-3.5	---	---	None	---	None
			Apr-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.5-1.5	2.0-3.5	---	---	None	---	None
Dallardsville	B	Low								
			Jan-Mar	3.0-4.0	3.0-4.0	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	3.0-4.0	3.0-4.0	---	---	None	---	None
WcB:										
Wiergate	D	Low								
			Jan-Dec	---	---	---	---	None	---	None
WnB:										
Woodville	D	Low								
			Jan-Dec	---	---	---	---	None	---	None

Table 30.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
WnD:										
Woodville------------------	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
WnS:										
Woodville------------------	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Sawlit---------------------	C	Medium								
			Jan-May	2.0-3.5	2.5-4.0	---	---	None	---	None
			Jun-Dec	---	---	---	---	None	---	None

Table 31.--Physical Analysis of Selected Soils

(The abbreviation "COLE" means coefficient of linear extensibility. Dashes indicate that data were not available.)

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density: 1/3-bar	Bulk Density: Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Babco (1,3)																
S94TX-199-004																
95P01006	0-8	AE	TR	1.0	11.0	49.0	17.0	76.0	8.0	22.3	---	1.7	0.007	1.33	1.33	11.1
95P01007	8-12	E	---	TR	9.0	49.0	17.0	73.6	9.0	24.1	---	2.3	---	1.61	1.61	6.2
95P01008	12-16	Bhs	---	TR	8.0	46.0	19.0	71.2	10.0	25.9	---	2.9	---	1.64	1.64	8.1
95P01009	16-22	Bs	---	1.0	8.0	46.0	18.0	70.8	10.0	24.1	---	2.5	0.004	1.66	1.68	7.7
95P01010	22-43	E'	---	TR	7.0	45.0	18.0	68.1	12.0	26.7	---	2.7	---	1.79	1.79	8.7
95P01011	43-55	E/Btg	---	TR	8.0	47.0	17.0	69.8	11.0	29.2	---	3.7	---	1.88	1.88	9.6
95P01012	55-67	Btg/E1	---	TR	9.0	50.0	16.0	69.3	9.0	26.5	---	7.3	0.004	1.83	1.85	11.9
95P01013	67-80	Btg/E2	---	TR	8.0	49.0	17.0	69.7	10.0	23.4	---	6.8	0.004	1.86	1.88	9.8
95P01014	80-91	Btg/E3	---	TR	7.0	48.0	17.0	68.4	11.0	25.3	---	6.3	---	1.95	1.95	7.8
Belrose (2,4)																
S95TX-199-006																
4989	0-5	A	0.0	0.3	0.9	32.9	49.5	83.6	5.9	15.8	0.5	0.6	---	---	---	---
4990	5-13	Bw1	0.0	0.1	0.6	30.2	51.5	82.4	7.1	17.1	0.2	0.5	---	---	---	---
4991	13-20	Bw2	0.1	0.0	0.4	30.2	51.9	82.5	7.0	15.7	0.4	1.8	0.0	1.48	1.48	24.5
4992	20-31	Bw/E1	0.0	0.0	0.3	30.7	50.4	81.5	6.2	14.4	0.7	4.1	0.002	1.44	1.45	25.6
4993	31-44	Bw/E2	0.0	0.0	0.3	30.3	51.6	82.2	5.9	14.5	0.5	3.3	0.017	1.33	1.40	25.1
4994	44-63	E/Bt	0.0	0.0	0.3	28.8	52.1	81.2	6.9	14.1	0.5	4.7	0.007	1.39	1.42	25.0
4995	63-75	Bt/E	0.0	0.0	0.1	23.7	46.3	70.1	3.6	10.5	10.9	19.4	0.013	1.49	1.55	24.0
4996	75-80	E'/Bt	0.0	0.0	0.2	37.0	43.8	81.0	2.6	9.6	4.2	9.4	0.012	1.40	1.45	25.1
Caneyhead (2,4)																
S95TX-199-007																
4997	0-4	A	0.1	0.4	1.1	4.5	19.9	26.0	44.1	61.7	3.2	12.3	0.021	1.23	1.31	35.7
4998	4-18	Eg	0.1	0.2	0.6	4.6	28.5	34.0	31.8	50.3	5.6	15.7	0.013	1.55	1.61	21.6
4999	18-29	Eg/Btg	0.2	0.4	0.6	3.9	22.9	28.0	31.2	46.6	12.1	25.4	0.015	1.54	1.61	24.1
5000	29-46	Btg/E1	0.1	0.2	0.5	3.2	22.5	26.5	25.0	40.0	17.6	33.5	0.040	1.53	1.72	26.2
5001	46-63	Btg/E2	0.1	0.2	0.3	6.8	33.1	40.5	15.3	32.3	13.5	27.2	0.033	1.56	1.72	23.4
5002	63-80	Btg/E3	0.0	0.1	0.3	17.5	43.9	61.8	8.7	21.1	9.5	17.1	0.037	1.47	1.64	27.3

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Sand: Coarse (1.0-0.5mm)	Sand: Medium (0.5-0.25mm)	Sand: Fine (0.25-0.1 mm)	Sand: Very fine (0.1-0.05 mm)	Sand: Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density: 1/3-bar	Bulk Density: Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Chambliss (1,6)																
S04TX-457-003																
04N05267	0-6	Ap	0.7	12.5	39.2	24.7	6.9	84.0	5.9	12.2	2.4	3.8	---	---	---	---
04N05268	6-11	Bw1	1.1	13.6	39.7	23.8	5.5	83.7	5.5	10.8	3.2	5.5	---	---	---	---
04N05269	11-21	Bw2	1.2	13.2	43.1	19.9	4.7	82.1	4.6	10.5	4.3	7.4	---	---	---	---
04N05270	21-33	Bt1	0.8	10.8	40.1	23.1	5.2	80.0	3.6	10.7	5.4	9.3	---	---	---	---
04N05271	33-56	Bt2	0.7	10.9	36.4	22.2	6.7	76.9	3.8	11.5	7.9	11.6	---	---	---	---
04N05272	56-69	Bt3	0.9	10.8	33.6	24.4	5.9	75.6	4.6	12.8	8.6	11.6	---	---	---	---
04N05273	69-80	Bt4	0.9	10.4	37.0	23.0	6.3	77.6	4.3	11.7	8.3	10.7	---	---	---	---
Choates (1,3)																
S04TX-457-005																
04N5281	0-4	Ap	0.1	0.9	30.1	41.2	8.7	81.0	6.7	15.9	2.6	3.1	---	---	---	---
04N5282	4-20	E	---	1.1	29.8	38.8	11.8	81.5	6.6	15.5	3.0	3.0	0.004	1.80	1.82	5.0
04N5283	20-26	Bt/E1	---	0.7	23.0	37.5	7.4	68.6	6.4	13.8	14.9	17.6	0.024	1.63	1.75	14.5
04N5284	26-40	Bt/E2	0.1	0.9	25.3	28.7	5.9	60.9	6.3	12.7	22.6	26.4	0.026	1.65	1.78	16.7
04N5285	40-61	Btv/E1	0.2	1.0	21.8	26.8	5.8	55.6	8.0	16.1	23.2	28.3	0.025	1.68	1.81	15.8
04N5286	61-80	Btv/E2	TR	1.3	24.0	26.1	6.1	57.5	7.7	13.9	23.8	28.6	0.027	1.68	1.82	16.5
Colmesneil (1,3)																
S04TX-457-002																
04N05261	0-7	Ap	0.5	3.9	33.6	36.7	8.8	83.5	5.5	14.3	1.1	2.2	---	---	---	2.4
04N05262	7-13	Bw1	0.3	3.1	34.1	39.4	6.9	83.8	5.9	13.7	1.2	2.5	---	---	---	1.0
04N05263	13-29	Bw2	0.2	2.8	33.7	38.8	8.8	84.3	5.7	13.2	1.4	2.5	---	---	---	1.4
04N05264	29-47	E/Bt1	0.3	2.7	28.6	39.9	7.8	79.3	6.7	14.8	2.5	5.9	---	---	---	1.6
04N05265	47-66	E/Bt2	0.2	2.0	29.3	38.3	8.9	78.6	6.9	15.1	2.9	6.3	---	---	---	2.7
04N05266	66-80	Bt/E	0.2	2.3	27.8	38.8	7.0	76.1	7.2	16.7	4.2	7.2	---	---	---	3.0
Dallardsville (2,4)																
S96TX-199-002																
6007	0-6	A	1.0	1.4	4.0	17.5	26.8	50.7	21.4	46.1	2.5	3.2	0.016	1.42	1.49	28.7
6008	6-17	E	0.2	0.4	3.6	18.1	27.0	49.3	20.9	46.6	4.5	4.1	0.009	1.51	1.55	22.7
6009	17-25	E/Bt	0.1	0.3	3.5	17.2	26.0	47.1	21.3	46.3	4.9	6.6	0.009	1.43	1.47	21.6
6010	25-43	Bt/E	0.3	0.4	3.3	15.5	24.1	43.6	21.3	47.1	7.1	9.3	0.012	1.43	1.48	21.6
6011	43-54	Bt/Eg	0.3	0.5	3.0	14.8	23.7	42.3	20.3	44.5	10.7	13.2	0.015	1.50	1.57	20.8
6012	54-73	Btv/Eg1	0.1	0.2	2.8	15.4	23.6	42.1	22.6	46.4	9.7	11.5	0.028	1.51	1.64	19.2
6013	73-80	Btv/Eg2	0.0	0.1	2.3	13.9	22.0	38.3	28.5	51.3	8.6	10.4	0.022	1.50	1.60	20.9

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density: 1/3-bar	Bulk Density: Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Evadale (2,4)																
S96TX-199-005																
6029	0-5	A	0.1	0.9	0.9	4.1	13.0	19.0	47.7	68.2	5.9	12.8	0.042	1.21	1.37	38.0
6030	5-16	E	0.1	0.3	0.8	5.0	16.5	22.7	40.6	64.8	6.3	12.5	0.033	1.29	1.42	33.8
6031	16-25	Eg/Btg	0.0	0.1	0.4	2.7	8.9	12.1	43.4	64.7	13.3	23.2	0.041	1.37	1.56	30.0
6032	25-41	Btg/Eg	0.0	0.0	0.1	2.2	6.8	9.1	36.6	54.4	25.0	36.5	0.080	1.39	1.75	29.6
6033	41-59	Bssg1	0.0	0.0	0.1	2.3	6.5	8.9	35.6	52.5	25.8	38.6	0.095	1.43	1.88	28.3
6034	59-80	Bssg2	0.2	0.2	0.2	2.2	7.0	9.8	25.1	46.6	28.7	43.6	0.122	1.40	1.98	32.2
Hillister (1,3)																
S04TX-457-001																
04N05254	0-6	Ap	0.8	9.9	44.6	26	4.4	85.7	7	12.2	0.7	2.1	---	---	---	02.6
04N05255	6-12	E1	0.6	10.3	44.5	23.8	4.9	84.1	7.2	13.1	0.5	2.8	---	---	---	01.3
04N05256	12-28	E2	1.2	9.5	44.6	26.1	4.2	85.6	7.2	12.1	0.7	2.3	---	---	---	01.0
04N05257	28-35	Bt/E1	6.5	27.1	36.8	9.5	0.9	80.8	5.7	5.8	4.6	13.4	---	---	---	04.7
04N05258	35-50	Bt/E2	1.2	18.8	39.1	9.7	0.3	69.6	3.2	3.5	11.1	26.9	---	---	---	09.0
04N05259	50-63	C1	0.6	15.1	41.1	7.5	2.8	65.2	2.8	3.3	18.9	31.5	---	---	---	11.7
04N05260	63-80	C2	0.4	8.2	43	13.6	1.3	66.5	3.2	4.8	16.8	28.7	---	---	---	10.3
Jayhawker (2,3)																
S95TX-199-009																
5010	0-6	A	0.1	0.1	0.5	7.0	29.7	37.4	33.0	57.8	1.4	4.8	0.011	1.50	1.55	25.8
5011	6-20	Eg	0.0	0.2	0.5	8.5	31.3	40.5	27.1	54.1	2.0	5.4	0.013	1.54	1.60	21.1
5012	20-36	Eg/Btg	0.1	0.2	0.7	8.1	30.7	39.8	27.8	55.6	3.1	4.6	0.004	1.59	1.61	19.7
5013	36-69	Btg/Eg	0.2	0.1	0.6	7.7	27.5	36.1	27.0	55.6	5.9	8.3	0.014	1.62	1.69	20.8
5014	69-80	Exg/Btxg	0.1	0.1	0.3	8.1	30.6	39.2	26.4	54.2	3.5	6.6	0.006	1.80	1.83	15.4
Kenefick (2,5)																
S00TX-457-001																
6596	0-5	A	0.2	0.7	1.7	32.6	37.5	72.7	11.9	22.5	02.2	04.8	0.008	1.61	1.68	18.2
6597	5-10	E	0.2	0.3	0.9	31.8	38.5	71.7	11.5	22.8	02.3	05.5	0.013	1.56	1.62	21.8
6598	10-25	EB	0.0	0.1	1.1	30.7	36.4	68.3	11.0	21.6	05.1	10.1	0.014	1.59	1.66	20.3
6599	25-30	Btg1	0.0	0.1	0.3	25.6	32.1	58.1	10.3	18.8	15.5	23.1	0.025	1.54	1.66	25.9
6600	30-37	Btg2	0.0	0.1	0.3	21.6	29.0	51.0	08.0	13.6	27.0	35.4	0.026	1.50	1.62	26.6
6601	37-46	Btg3	0.0	0.0	0.2	23.9	33.7	57.8	07.0	15.6	19.5	26.6	0.017	1.51	1.59	24.6
6602	46-55	Btg4	0.0	0.1	0.1	31.0	37.3	68.5	05.7	13.0	13.1	18.5	0.020	1.49	1.58	23.2
6603	55-67	Btg5	0.0	0.0	0.1	31.1	41.8	73.0	03.9	11.4	10.4	15.6	0.020	1.49	1.58	26.8
6604	67-77	Btg6	0.0	0.0	0.1	18.8	43.6	62.5	06.5	17.9	12.6	19.6	0.011	1.49	1.53	24.6
6605	77-80	BC	0.0	0.0	0.1	28.0	45.1	73.2	05.2	17.2	04.5	09.6	---	---	---	---

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density: 1/3-bar	Bulk Density: Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Kirbyville (2,3)																
S00TX-457-003																
6614	0-6	A	0.8	0.7	3.9	22.9	21.4	49.7	22.9	41.8	4.5	8.5	0.008	1.67	1.71	17.4
6615	6-13	AE	0.5	0.5	4.3	27.1	24.9	57.3	17.5	36.9	3.9	5.8	0.019	1.74	1.84	15.7
6616	13-19	E	0.2	0.4	3.6	25.3	23.1	52.6	15.3	34.9	9.2	12.5	0.016	1.61	1.69	20.6
6617	19-24	Bt/E1	0.6	0.4	3.1	21.9	21.4	47.4	15.7	30.9	17.2	21.7	0.018	1.62	1.71	18.9
6618	24-36	Bt/E2	0.5	0.4	3.2	21.4	20.3	45.8	15.4	28.7	21.0	25.5	0.010	1.71	1.76	17.0
6619	36-56	Bt/Eg	0.5	0.4	3.4	23.7	22.0	50.0	15.1	29.3	16.1	20.7	0.017	1.71	1.80	18.0
6620	56-68	Btv/Eg	0.4	0.6	3.6	22.1	21.2	47.9	15.1	27.4	18.2	24.7	0.011	1.73	1.79	18.2
6621	68-80	B't/E'g	0.6	0.8	3.2	21.4	19.9	45.9	13.0	23.0	23.5	31.1	---	---	---	---
Kirbyville (1,7)																
S06TX-457-001																
07N01930	0-8	Ap	0.8	0.6	1.6	24.0	28.7	55.7	14.7	39.8	2.8	4.5	0.002	1.51	1.52	14.2
07N01931	8-20	Ep	0.3	0.2	0.7	19.8	28.5	49.5	15.2	39.4	7.2	11.1	0.005	1.81	1.84	11.2
07N01932	20-26	Bt/E1	0.4	0.2	0.9	23.5	21.7	46.7	17.4	40.0	10.3	13.3	0.010	1.68	1.73	15.3
07N01933	26-35	Bt/E2	0.1	0.2	0.2	17.4	22.7	40.6	14.1	35.0	18.0	24.4	0.014	1.61	1.68	17.0
07N01934	35-44	Btcv/E1	TR	0.2	0.7	18.7	23.0	42.6	14.0	34.9	17.7	22.5	0.018	1.61	1.70	16.2
07N01935	44-74	Btcv/E2	TR	0.1	0.7	17.2	27.3	45.3	12.8	34.5	15.5	20.2	0.011	1.70	1.76	15.1
07N01936	74-80	Btv/Eg	0.4	0.7	1.4	21.4	21.5	45.4	11.5	31.4	17.4	23.2	0.012	1.67	1.73	16.3
Kountze (2,3)																
S96TX-199-002																
6007	0-6	A	1.0	1.4	4.0	17.5	26.8	50.7	21.4	46.1	2.5	3.2	0.016	1.42	1.49	28.7
6008	6-17	E	0.2	0.4	3.6	18.1	27.0	49.3	20.9	46.6	4.5	4.1	0.009	1.51	1.55	22.7
6009	17-25	E/Bt	0.1	0.3	3.5	17.2	26.0	47.1	21.3	46.3	4.9	6.6	0.009	1.43	1.47	21.6
6010	25-43	Bt/E	0.3	0.4	3.3	15.5	24.1	43.6	21.3	47.1	7.1	9.3	0.012	1.43	1.48	21.6
6011	43-54	Bt/Eg	0.3	0.5	3.0	14.8	23.7	42.3	20.3	44.5	10.7	13.2	0.015	1.50	1.57	20.8
6012	54-73	Btv/Eg1	0.1	0.2	2.8	15.4	23.6	42.1	22.6	46.4	9.7	11.5	0.028	1.51	1.64	19.2
6013	73-80	Btv/Eg2	0.0	0.1	2.3	13.9	22.0	38.3	28.5	51.3	8.6	10.4	0.022	1.50	1.60	20.9
Nona (2,3)																
S96TX-199-008																
6049	0-3	0.53	1.1	1.1	0.9	18.3	37.2	58.6	13.2	38.6	1.7	2.8	0.020	1.28	1.37	27.3
6050	3-7	0.25	0.3	0.4	1.1	20.1	38.4	60.3	11.6	36.6	2.1	3.1	0.014	1.38	1.44	22.6
6051	7-19	0.16	0.2	0.6	1.0	24.2	39.1	65.1	11.1	31.3	2.7	3.6	0.027	1.46	1.58	21.9
6052	19-38	0.2	0.9	0.7	0.5	11.7	27.2	41.0	16.3	38.4	14.8	20.6	0.043	1.50	1.70	25.0
6053	38-53	0.16	0.3	0.3	0.4	9.5	20.8	31.3	16.8	34.0	26.2	34.7	0.062	1.47	1.76	27.3
6054	53-72	0.09	0.0	0.1	0.4	12.6	27.2	40.3	16.2	34.5	16.0	25.2	0.040	1.60	1.80	18.3
6055	72-80	0.06	0.1	0.0	0.2	10.1	24.0	34.4	15.6	29.2	21.9	36.4	0.100	1.45	1.93	29.2

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density 1/3-bar	Bulk Density Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Otanya (2,3)																
S98TX-457-001																
6295	0-6	Ap	0.2	0.5	1.3	34.9	34.9	71.8	10.1	24.6	1.3	3.6	0.018	1.46	1.54	24.9
6296	6-12	E	0.4	0.3	0.9	34.3	34.4	70.3	9.8	25.1	2.6	4.6	0.013	1.53	1.59	21.7
6297	12-19	E/Bt	0.2	0.4	1.2	33.1	32.3	67.2	10.3	24.0	6.1	8.8	0.002	1.50	1.51	15.6
6298	19-28	Bt	0.3	0.2	0.7	28.3	28.8	58.3	9.8	22.2	15.3	19.5	0.018	1.49	1.57	21.8
6299	28-43	Btc1	0.4	0.1	0.5	27.2	27.7	55.9	9.6	21.2	18.9	22.9	0.019	1.57	1.66	23.2
6300	43-60	Btc2	0.1	0.1	0.5	28.0	29.0	57.7	7.8	21.3	16.8	21.0	0.015	1.55	1.62	19.9
6301	60-77	B't1	0.1	0.1	0.4	30.8	27.8	59.2	7.5	19.1	16.2	21.7	0.012	1.59	1.65	20.6
6302	77-80	B't2	0.1	0.0	0.4	34.3	26.1	60.9	6.6	16.8	16.0	22.3	0.016	1.63	1.71	18.9
Pinetucky (1,3)																
S04TX-457-004																
04N05274	0-5	Ap	0.4	4.9	24.0	29.3	14.7	73.3	5.7	22.5	3.3	4.2	---	---	---	---
04N05275	5-9	E	0.4	4.4	20.3	33.3	12.2	70.6	5.7	23.0	4.7	6.4	---	---	---	---
04N05276	9-15	Bt	0.1	2.9	17.9	23.9	10.3	55.1	6.3	20.5	21.2	24.4	0.018	1.60	1.69	16.9
04N05277	15-25	Btv1	0.4	1.9	13.3	18.7	6.4	40.7	9.0	18.1	33.0	41.2	0.019	1.52	1.61	20.6
04N05278	25-38	Btv2	0.3	3.7	15.4	18.8	6.7	44.9	9.3	18.3	29.4	36.8	0.017	1.50	1.58	22.0
04N05279	38-62	Bt/C	0.3	3.4	15.5	19.8	6.8	45.8	9.8	19.3	27.4	34.9	0.007	1.81	1.81	15.9
04N05280	62-80	CBt	0.1	3.1	17.6	19.2	7.2	47.2	8.3	17.6	27.0	35.2	---	---	---	---
Plank (1,3)																
S94TX-199-005																
95P1015S	0-3	A	0.1	0.1	0.5	7.2	16.2	24.1	46.5	71.0	3.3	4.9	0.004	1.50	1.52	15.4
95P1016S	3-24	Bg1	---	TR	0.3	9.6	21.3	31.2	40.7	65.2	2.8	3.6	0.004	1.62	1.64	15.8
95P1017S	24-35	Bg2	---	TR	0.3	9.0	22.9	32.2	35.2	61.7	4.3	6.1	0.002	1.65	1.66	15.3
95P1018S	35-65	Btg1	---	0.1	0.3	10.0	24.1	34.5	29.4	56.8	6.5	8.7	0.008	1.68	1.72	14.4
95P1019S	65-80	Btg2	---	TR	0.3	10.9	27.1	38.3	26.0	55.6	4.8	6.1	0.016	1.67	1.75	15.9
Sawlit (1,3)																
S05TX-457-002																
05N04284	0-9	Ap	0.1	0.3	7.6	34.6	25.4	68.0	8.2	28.6	---	3.4	0.002	1.48	1.49	13.4
05N04285	9-12	E	0.1	0.2	5.8	33.7	27.2	67.0	8.9	28.5	---	4.5	0.002	1.53	1.54	12.5
05N04286	12-25	Bt/E1	TR	0.1	6.6	30.3	19.6	56.6	9.6	25.4	---	18.0	0.046	1.52	1.74	22.1
05N04287	25-31	2Bt/E1	TR	0.1	5.5	21.9	19.1	46.6	10.6	24.3	---	29.1	0.038	1.53	1.71	20.4
05N04288	31-43	2Bt/E2	TR	0.3	5.7	22.8	16.8	45.6	9.4	22.5	---	31.9	0.420	1.60	1.81	19.7
05N04289	43-57	2Btss/E1	0.1	0.2	4.6	21.2	16.4	42.5	8.9	21.8	---	35.7	0.470	1.57	1.80	20.9
05N04290	57-80	2Btss/E2	0.1	0.2	4.7	20.5	14.6	40.1	14.0	27.8	---	32.1	0.046	1.60	1.83	19.8

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density 1/3-bar	Bulk Density Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Sawlit (1,8)																
S05TX-457-004																
05N04296	0-5	Ap	0.2	0.7	11.5	39.9	21.1	73.4	8.5	21.9	---	4.7	---	---	---	---
05N04297	5-14	E	0.3	0.5	8.7	41.8	21.7	73.0	7.6	21.1	---	5.9	0.006	1.67	1.70	9.3
05N04298	14-20	E/Bt	0.2	0.6	10.2	41.5	16.8	69.3	7.6	21.5	---	9.2	0.010	1.67	1.72	8.9
05N04299	20-32	Bt/E	0.2	0.5	9.9	33.1	18.6	62.3	8.2	21.1	---	16.6	0.016	1.59	1.67	13.0
05N04300	32-53	2Bt/E1	0.1	0.4	7.0	21.8	15.6	44.9	12.3	24.9	---	30.2	0.040	1.53	1.72	22.1
05N04301	53-80	2Bt/E2	---	0.3	7.1	25.8	12.9	46.1	11.8	24.9	---	29.0	---	---	---	---
Sawtown (1,3)																
S05TX-457-001																
05N04277	0-8	Ap	0.1	0.3	3.9	24.2	23.9	52.4	19.7	41.7	---	5.9	---	---	---	---
05N04278	8-17	E1	0.2	0.3	4.9	33.2	26.3	64.9	11.8	32.2	---	2.9	---	1.69	1.69	8.6
05N04279	17-19	E2	0.3	0.2	4.8	27.3	28.5	61.1	13.7	35.0	---	3.9	---	1.70	1.71	8.8
05N04280	19-36	Bt1	0.3	0.3	4.0	24.5	21.0	50.1	14.9	34.5	---	15.4	---	1.58	1.65	15.6
05N04281	36-49	Bt2	0.2	0.4	3.2	22.6	21.9	48.3	17.2	35.7	---	16.0	---	1.61	1.69	15.4
05N04282	49-60	2Bt/E1	0.2	0.3	3.8	24.5	17.5	46.3	19.0	36.3	---	17.4	---	1.63	1.72	16.3
05N04283	60-80	2Bt/E2	0.1	0.1	3.5	18.5	19.3	41.5	22.0	38.6	---	19.9	---	1.61	1.71	17.0
Silsbee (2,3)																
S99TX-199-005																
4982	0-5	A	0.5	0.7	8.4	39.5	28.4	77.5	9.6	21.5	0.9	1.0	---	---	---	---
4983	5-15	E	0.1	0.3	7.7	38.0	28.9	75.0	12.1	23.0	1.0	2.0	0.012	1.60	1.66	18.7
4984	15-30	Bt1	0.1	0.2	4.7	26.3	21.5	52.8	11.8	21.1	21.8	26.1	0.018	1.62	1.71	20.0
4985	30-49	Bt2	0.0	0.1	4.4	27.1	22.4	54.0	9.6	18.4	21.8	27.6	0.012	1.67	1.73	19.5
4986	49-58	Bt3	0.0	0.1	3.8	30.2	23.5	57.6	7.8	15.6	21.7	26.8	0.008	1.66	1.70	18.4
4987	58-71	Bt4	0.0	0.1	4.3	35.9	21.6	61.9	6.2	14.0	19.0	24.1	0.008	1.69	1.73	17.4
4988	71-80	Bt5	0.0	0.1	4.2	43.5	18.8	66.6	5.3	10.9	17.9	22.5	0.008	1.67	1.71	18.0
Sorter (2,9)																
S00TX-457-002																
6606	0-4	Ap	0.7	1.5	5.2	26.3	20.2	53.9	25.4	43.0	2.0	3.1	0.016	1.27	1.33	25.4
6607	4-11	Bg1	0.7	0.5	5.1	27.0	22.0	55.3	23.3	41.8	2.1	2.9	0.010	1.65	1.70	18.4
6608	11-18	Bg2	0.4	0.4	1.9	29.8	21.5	54.0	23.8	42.8	2.7	3.2	0.010	1.65	1.70	15.1
6609	18-30	Btg/Eg	0.6	0.4	2.4	27.0	20.3	50.7	25.9	43.8	4.3	5.5	0.016	1.60	1.68	18.2
6610	30-48	Bt/Eg	0.4	0.3	2.9	24.5	19.4	47.5	28.1	44.7	5.9	7.8	0.016	1.63	1.71	16.9
6611	48-59	Btg/E	0.4	0.4	3.8	23.6	19.6	47.8	27.8	44.5	5.8	7.7	0.010	1.68	1.73	15.3
6612	59-76	B'tg/E'g	0.3	0.3	3.8	24.4	19.9	48.7	27.2	44.0	5.5	7.3	0.015	1.71	1.79	14.3
6613	76-80	B't/E'g	0.3	0.2	3.1	25.2	19.9	48.7	23.9	40.5	8.2	10.8	0.019	1.70	1.80	16.8

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density: 1/3-bar	Bulk Density: Oven Dry	Water Content 1/3-bar
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Spurger (2,4)																
S96TX-199-003																
6014	0-5	A	1.3	1.7	2.8	19.4	30.3	55.5	20.1	37.8	2.4	6.7	0.018	1.42	1.50	28.2
6015	5-11	E	0.7	0.8	2.5	18.7	33.6	56.3	19.7	34.6	3.7	9.1	0.006	1.59	1.62	16.6
6016	11-25	Bt	0.5	1.0	1.5	4.2	9.3	16.5	18.8	26.7	35.8	56.8	0.108	1.22	1.66	39.3
6017	25-37	Btss	0.2	0.6	0.9	2.9	8.7	13.3	18.8	25.5	40.6	61.2	0.118	1.21	1.69	40.0
6018	37-50	Bss1	0.1	0.6	1.2	5.1	8.7	15.7	18.9	27.6	35.9	56.7	0.121	1.25	1.76	37.7
6019	50-58	Bss2	0.1	0.5	2.5	17.4	9.8	30.3	17.0	23.3	27.7	46.4	0.099	1.32	1.75	32.3
6020	58-74	Btg	0.1	0.1	7.2	34.2	9.8	51.4	10.1	18.2	18.8	30.4	0.063	1.48	1.78	26.1
6021	74-80	Bt/Eg	0.0	0.1	14.2	61.3	6.7	82.3	2.8	6.0	7.1	11.7	0.014	1.64	1.71	15.3
Turkey (1,3)																
S94TX-199-002																
95P00991	0-5	A	TR	2.3	48.9	35.5	2.3	89.0	3.4	0.2	---	3.8	0.006	1.55	1.58	6.1
95P00992	5-10	E	---	2.1	46.5	39.1	2.0	89.7	3.5	6.1	---	4.2	0.004	1.64	1.66	3.8
95P00993	10-20	Bw1	TR	2.4	47.7	37.0	2.2	89.3	3.5	6.2	---	4.5	0.014	1.69	1.76	8.9
95P00994	20-33	Bw2	TR	2.6	50.1	34.8	1.8	89.3	3.7	6.6	---	4.1	---	---	---	---
95P00995	33-52	Bw3	---	1.7	49.6	36.8	1.9	90.0	3.1	5.6	---	4.4	0.012	1.71	1.77	10.2
95P00996	52-80	BC	TR	2.7	50.0	34.0	1.9	88.6	3.5	6.1	---	5.3	---	---	---	---
Tyden (1,3)																
S94TX-199-003																
95P00997	0-6	A1	0.1	3.0	3.9	17.3	15.0	39.3	31.7	57.1	---	3.6	---	---	---	---
95P00998	6-13	A2	TR	0.1	2.0	27.6	15.3	45.0	27.4	50.5	3.5	4.5	0.002	1.46	1.47	16.2
95P00999	13-19	A/Eg	---	0.1	4.3	35.3	14.1	53.8	23.1	42.7	3.5	3.5	0.016	1.63	1.71	10.9
95P01000	19-28	E/Btg1	TR	0.1	6.1	35.7	13.5	55.4	21.9	41.0	3.0	3.6	---	1.81	1.81	9.8
95P01001	28-41	E/Btg2	TR	0.2	5.5	34.7	13.3	53.7	22.6	41.5	4.1	4.8	0.004	1.78	1.80	10.9
95P01002	41-58	Btgx/E	---	0.1	5.1	34.6	13.8	53.6	22.6	40.9	4.4	5.5	0.007	1.77	1.81	12.1
95P01003	58-73	Btg/E1	TR	0.1	4.9	34.9	13.6	53.5	21.4	39.9	4.9	6.6	0.007	1.81	1.85	10.2
95P01004	73-82	Btg/E2	---	0.1	4.4	31.8	12.9	49.2	24.0	41.6	6.2	9.2	0.020	1.67	1.77	16.4
95P01005	82-89	Btg/E3	---	0.1	2.3	16.0	18.3	36.7	23.4	49.4	8.0	13.9	0.013	1.73	1.80	15.6
Votaw (2,3)																
S95TX-199-004																
4974	0-4	A	0.8	0.9	10.8	65.4	15.5	93.4	3.3	5.6	0.4	1.0	0.017	1.13	1.19	27.7
4975	4-9	Bw1	0.2	0.3	10.4	67.9	14.8	93.6	2.4	4.8	0.3	1.6	0.002	1.43	1.44	24.3
4976	9-15	Bw2	0.0	0.2	11.2	66.5	14.1	92.0	2.8	7.1	0.3	0.9	0.002	1.53	1.54	21.7
4977	15-25	Bw3	0.0	0.2	11.2	68.8	13.5	93.7	2.2	5.5	0.3	0.8	0.004	1.53	1.55	20.7
4978	25-29	Bw4	0.0	0.2	10.7	68.5	14.1	93.5	2.3	5.6	0.2	0.9	0.002	1.45	1.46	22.4
4879	29-47	Bw/Eg1	0.0	0.2	10.9	68.7	14.1	93.9	2.2	5.4	0.3	0.7	0.004	1.53	1.55	20.9
4980	47-63	Bw/Eg2	0.0	0.1	11.6	69.0	13.0	93.7	2.5	5.6	0.3	0.7	0.018	1.44	1.52	17.0
4981	63-80	Bg	0.0	0.1	16.4	67.6	11.6	95.7	1.5	4.0	0.3	0.3	---	---	---	---

See footnotes at end of table

Table 31.--Physical Analysis of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5mm)	Medium (0.5-0.25mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2.0-0.05 mm)	Fine Silt (0.02-0.002 mm)	Total Silt	Fine Clay <0.0002 mm	Total Clay	COLE	Bulk Density 1/3-bar	Bulk Density Oven Dry	Water Content 1/3-bar
			Particle-size distribution: Sand													
	In		(by weight)										cm/cm	g/cc	g/cc	Wt %
Waller (2,3)																
S00TX-457-004																
6622	0-4	A	0.2	0.5	1.2	17.7	16.5	36.1	40.7	56.0	3.4	7.9	0.018	1.37	1.45	27.8
6623	4-9	Eg1	0.0	0.1	0.8	19.9	20.5	41.3	34.3	50.9	4.2	7.8	0.008	1.73	1.77	17.6
6624	9-15	Eg2	0.2	0.1	0.6	18.0	19.3	38.2	37.0	51.6	5.8	10.2	0.008	1.72	1.76	17.1
6625	15-26	Eg/Btg	0.2	0.1	0.6	16.3	17.6	34.8	37.5	50.8	8.6	14.4	0.010	1.67	1.72	18.2
6626	26-37	Btg/Eg	0.1	0.1	0.5	12.9	15.0	28.6	35.6	48.0	15.3	23.4	0.012	1.63	1.69	17.9
6627	37-50	Bt/Eg1	0.6	0.8	1.7	17.0	16.7	36.8	21.7	33.1	21.7	30.1	0.012	1.59	1.65	21.9
6628	50-65	Bt/Eg2	0.0	0.2	0.9	20.0	18.7	39.8	19.8	31.3	21.8	28.9	0.002	1.79	1.80	16.3
6629	65-80	Bt/Eg3	0.0	0.1	0.5	24.5	21.7	46.9	14.3	27.7	20.5	25.4	0.013	1.73	1.80	17.6
Woodville (1,10)																
S05TX-457-003																
05N04291	0-7	Ap	0.1	0.8	8.8	39.9	20.0	69.6	12.4	25.3	---	5.1	0.092	1.36	1.77	29.5
05N04292	7-10	Btss1	0.1	0.1	1.6	11.3	6.1	19.2	12.3	16.7	---	64.1	0.110	1.23	1.68	34.1
05N04293	10-21	Btss2	0.1	0.1	1.5	14.0	8.0	23.7	13.8	19.5	---	56.8	---	---	---	---
05N04294	21-49	Btss3	---	0.1	0.8	30.1	6.5	37.5	10.6	13.3	---	49.2	---	---	---	---
05N04295	49-80	Btss4	---	TR	0.6	43.2	9.5	53.3	5.5	9.2	---	37.5	0.078	1.42	1.78	26.7

Footnotes

1 Soil Characterization Laboratory, Texas A&M University, College Station, Texas.

2 National Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska.

3 Type location for series in Tyler County.

4 Typifying pedon for Hardin County, Texas.

5 Official series description, not typical pedon.

6 Location: in Woodville, from U.S. Highway 287, 2.9 miles west on U.S. Highway 190; 0.9 mile southwest on CR 1100; 2.95 miles south and southwest on International Paper Seed Orchard Road; 0.1 mile east on lane to property-line fence, 400 feet north, and 75 feet west of fence in replanted pine plantation.

7 Location: in Hardin County, from the intersection of Texas Highway 92 and Farm Road 2827, 1 mile north on Texas Highway 92 to county road, 1.3 miles west on county road to forest road, 0.25 mile north on forest road, and 50 feet west in forest.

8 Location: in Woodville, from the intersection of U.S. Highway 69 and U.S. Highway 190, 5.3 miles north on U.S. Highway 69, 0.5 mile east on Farm Road 3065, 0.8 mile southeast on gravel road to powerline right-of-way, 0.25 mile south on woods road, 450 feet east on adjoining woods road, and 20 feet north into woods.

9 Location: near Warren, from the intersection of Farm Road 2827 and U.S. Highway 69, 5.1 miles west on Farm Road 2827, 1.4 miles west on county road, 1.3 miles south on forest road, 1,9 miles on forest road, and 100 feet on flat in forest.

10 Location: in Woodville, from the intersection of U.S. Highway 69 and U.S. Highway 190, 5.3 miles north on U.S. Highway 69, 0.5 mile east on Farm Road 3065, 0.8 mile southeast on gravel road to powerline right-of-way, 0.25 mile south on woods road, 1,000 feet east on adjoining woods road, and 20 feet south in clearing.

Table 32.--Chemical Analyses of Selected Soils

(Dashes indicate that analyses were not made)

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases					Total Acid-ity	Cation Exchange capacity (effect-ive)	Base satura-tion (sum)	Exchange-able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
					Ca	Mg	K	Na	Al						
	In		Pct	pH	Meq/100gm							Pct	Pct	Pct	
Babco (1,3)															
S94TX-199-004															
95P01006	0-8	AE	2.03	3.8	0.1	0.3	TR	---	1.6	11.9	2.0	3	---	80	4.94
95P01007	8-12	E	0.12	4.0	---	---	---	---	1.9	5.8	---	TR	---	---	1.79
95P01008	12-16	Bhs	0.63	3.9	---	---	---	---	0.2	0.5	---	2	---	---	0.30
95P01009	16-22	Bs	0.32	4.5	---	---	---	---	0.9	3.0	---	TR	---	---	0.60
95P01010	22-43	E'	0.13	4.6	0.1	---	TR	---	0.4	0.5	0.5	17	---	80	0.26
95P01011	43-55	E/Btg	0.04	4.5	---	---	---	---	0.7	1.9	---	1	---	---	0.27
95P01012	55-67	Btg/E1	0.06	4.6	---	---	TR	---	2.0	2.7	2.0	1	---	100	0.38
95P01013	67-80	Btg/E2	0.03	4.7	---	---	TR	---	1.5	3.2	1.5	1	---	100	0.35
95P01014	80-91	Btg/E3	0.03	5.1	---	---	0.1	TR	0.8	2.3	0.9	4	---	89	0.25
Belrose (2,4)															
S95TX-199-006															
4989	0-5	A	0.40	4.6	0.2	0.1	0.1	0.1	0.7	---	1.2	14	3	58	6.17
4990	5-13	Bw1	0.41	4.9	0.3	0.1	0.0	0.0	0.8	---	1.2	10	0	67	7.80
4991	13-20	Bw2	0.14	5.4	0.6	0.1	0.1	0.1	0.4	---	1.3	27	3	31	1.83
4992	20-31	Bw/E1	0.13	5.3	0.4	0.1	0.1	0.1	0.3	---	1.0	24	3	30	0.71
4993	31-44	Bw/E2	0.07	5.2	0.1	0.1	0.0	0.1	0.7	---	1.0	12	4	70	0.76
4994	44-63	E/Bt	0.07	5.3	0.2	0.2	0.1	0.1	0.6	---	1.2	23	4	50	0.55
4995	63-75	Bt/E	0.15	5.0	1.5	0.2	0.2	0.1	2.3	---	4.3	24	1	53	0.43
4996	75-80	E'/Bt	0.05	4.9	0.9	0.9	0.1	0.0	1.1	---	3.0	42	0	37	0.48
Caneyhead (2,4)															
S95TX-199-007															
4997	0-4	A	1.39	4.5	1.6	0.6	0.2	0.1	1.3	---	3.8	32	1	34	0.63
4998	4-18	Eg	0.21	4.7	1.0	0.7	0.1	0.0	1.8	---	3.6	29	0	50	0.39
4999	18-29	Eg/Btg	0.30	4.4	1.5	1.3	0.1	0.1	4.7	---	7.7	26	1	61	0.45
5000	29-46	Btg/E1	0.30	4.4	2.8	2.0	0.2	0.5	6.7	---	12.2	32	3	55	0.51
5001	46-63	Btg/E2	0.15	4.5	2.6	2.1	0.2	0.5	5.6	---	11.0	34	3	51	0.59
5002	63-80	Btg/E3	0.11	4.8	1.8	1.3	0.1	0.4	3.3	---	6.9	40	4	48	0.53
Chambliss (1,6)															
S04TX-457-003															
04N05267	0-6	Ap	---	5.6	1.2	0.2	---	---	---	3.7	---	27	---	---	0.58
04N05268	6-11	Bw1	---	6.0	0.7	0.2	---	---	---	1.4	---	39	---	---	0.25
04N05269	11-21	Bw2	---	5.8	0.7	0.1	---	---	---	1.0	---	44	---	---	0.18
04N05270	21-33	Bt1	---	5.7	0.8	0.2	---	---	---	1.1	---	48	---	---	0.16
04N05271	33-56	Bt2	---	5.2	0.6	0.5	---	---	0.2	2.3	1.3	32	---	15	0.18
04N05272	56-69	Bt3	---	5.2	0.8	0.5	---	---	0.3	2.2	1.6	37	---	19	0.22
04N05273	69-80	Bt4	---	5.0	0.4	0.3	---	---	0.6	2.8	1.3	20	---	46	0.21

See footnotes at end of table

Table 32.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases Ca	Extractable bases Mg	Extractable bases K	Extractable bases Na	Al	Total Acid-ity	Cation Exchange capacity (effect-ive)	Base satura-tion (sum)	Exchange-able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
	In		Pct	pH	Meq/100gm							Pct	Pct	Pct	
Choates (1,3)															
S04TX-457-005															
04N5281	0-4	Ap	---	4.3	0.4	0.2	0.1	---	0.9	5.0	1.6	12	---	56	0.87
04N5282	4-20	E	---	5.3	0.2	0.1	TR	---	0.2	1.4	0.5	18	---	40	0.27
04N5283	20-26	Bt/E1	---	4.8	1.8	0.8	0.1	---	3.1	6.5	5.8	29	---	53	0.41
04N5284	26-40	Bt/E2	---	4.7	1.7	0.9	0.1	---	5.1	10.7	7.8	20	---	65	0.37
04N5285	40-61	Btv/E1	---	4.7	1.8	0.9	0.2	---	6.0	11.2	8.9	21	---	67	0.41
04N5286	61-80	Btv/E2	---	4.7	2.8	1.1	0.2	0.1	5.4	10.5	9.6	29	1	56	0.40
Colmesneil (1,3)															
S04TX-457-002															
04N05261	0-7	Ap	---	4.5	0.3	0.2	TR	---	0.2	3.3	0.7	13	---	29	0.77
04N05262	7-13	Bw1	---	5.5	0.4	0.1	TR	---	---	0.4	---	56	---	---	0.40
04N05263	13-29	Bw2	---	5.6	0.2	0.1	TR	---	---	0.4	---	43	---	---	0.28
04N05264	29-47	E/Bt1	---	5.5	0.5	0.3	TR	---	---	2.7	---	23	---	---	0.20
04N05265	47-66	E/Bt2	---	5.5	0.5	0.4	TR	---	---	1.8	---	33	---	---	0.22
04N05266	66-80	Bt/E	---	5.5	0.7	0.6	TR	---	TR	1.2	---	52	---	---	0.26
Dallardsville (2,4)															
S96TX-199-002															
6007	0-6	A	1.49	5.3	1.8	0.4	0.1	0.1	0.0	---	2.4	44	2	---	---
6008	6-17	E	0.26	4.9	0.5	0.4	0.0	0.1	0.1	---	1.1	29	3	---	---
6009	17-25	E/Bt	0.11	4.8	0.6	0.5	0.0	0.1	0.2	---	1.4	31	3	---	---
6010	25-43	Bt/E	0.13	4.8	1.2	0.7	0.0	0.1	0.4	---	2.4	48	2	---	---
6011	43-54	Bt/Eg	0.11	4.7	1.3	1.1	0.0	0.1	0.5	---	3.0	51	2	---	---
6012	54-73	Btv/Eg1	0.07	4.2	0.6	0.7	0.0	0.1	1.2	---	2.6	31	2	---	---
6013	73-80	Btv/Eg2	0.05	4.3	0.5	0.6	0.0	0.1	1.7	---	2.9	28	2	---	---
Evadale (2,4)															
S96TX-199-005															
6029	0-5	A	1.92	5.0	7.5	1.2	0.1	0.1	0.1	---	9.0	83	1	11	0.84
6030	5-16	E	0.60	4.7	3.7	0.8	0.0	0.2	0.5	---	5.2	68	3	10	0.55
6031	16-25	Eg/Btg	0.43	4.1	4.9	1.2	0.1	0.3	2.2	---	8.7	54	2	25	0.52
6032	25-41	Btg/Eg	0.28	4.1	10.1	2.4	0.2	1.3	2.4	---	16.4	67	6	15	0.57
6033	41-59	Bssg1	0.19	4.3	12.5	3.0	0.2	2.2	0.6	---	18.5	79	8	3	0.59
6034	59-80	Bssg2	0.15	5.4	15.5	3.6	0.2	3.3	0.1	---	22.7	84	9	0	0.61
Hillister (1,3)															
S04TX-457-001															
04N05254	0-6	Ap	---	4.5	1	0.2	TR	---	0.4	6	1.6	17	---	25	1.76
04N05255	6-12	E1	---	5.7	0.4	0.1	TR	---	---	1.2	---	29	---	---	0.25
04N05256	12-28	E2	---	5.9	0.2	tr	---	---	---	0.7	---	22	---	---	0.17
04N05257	28-35	Bt/E1	---	5.5	0.7	0.3	TR	---	---	1.8	---	36	---	---	0.11
04N05258	35-50	Bt/E2	---	5.1	1.5	0.8	TR	---	0.3	4.1	2.6	36	---	12	0.14
04N05259	50-63	C1	---	4.6	0.7	0.6	TR	---	2.7	6.8	4.0	16	---	68	0.21
04N05260	63-80	C2	---	4.5	0.3	0.3	TR	---	3.3	6.8	3.9	8	---	85	0.18

See footnotes at end of table

Table 32.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases					Total Acid- ity	Cation Exchange capacity (effect- ive)	Base satura- tion (sum)	Exchange- able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
					Ca	Mg	K	Na	Al						
	In		Pct	pH	----	----	Meq/100gm	----	----	----	----	Pct	Pct	Pct	
Jayhawker (2,3)															
S95TX-199-009															
5010	0-6	A	0.80	4.7	0.3	0.2	0.0	0.1	1.1	---	1.7	14	2	65	0.88
5011	6-20	Eg	0.27	4.6	0.1	0.1	0.0	0.1	1.5	---	1.8	8	3	83	0.69
5012	20-36	Eg/Btg	0.14	4.4	0.1	0.1	0.1	0.1	1.8	---	2.2	11	3	82	0.83
5013	36-69	Btg/Eg	0.15	4.3	0.1	0.1	0.1	0.1	3.4	---	3.8	8	2	89	0.60
5014	69-80	Exg/Btxg	0.05	4.8	0.2	0.3	0.1	0.2	2.2	---	3.0	19	5	73	0.64
Kenefick (2,5)															
S00TX-457-001															
6596	0-5	A	1.35	5.4	1.5	0.4	0.1	0.0	0.2	---	2.2	39	---	---	---
6597	5-10	E	0.44	6.1	1.2	0.2	0.0	0.0	---	---	---	44	---	---	---
6598	10-25	EB	0.16	5.8	1.2	0.4	0.1	0.1	---	---	---	56	3	---	---
6599	25-30	Btg1	0.20	5.0	1.1	1.3	0.2	0.1	2.8	---	5.5	39	1	---	---
6600	30-37	Btg2	0.20	4.7	0.2	2.7	0.3	0.1	6.8	---	10.1	29	1	---	---
6601	37-46	Btg3	0.15	4.8	0.0	2.1	0.2	0.1	5.6	---	8.0	26	1	---	---
6602	46-55	Btg4	0.09	4.8	0.0	1.5	0.1	0.0	4.0	---	5.6	24	---	---	---
6603	55-67	Btg5	0.09	4.9	0.0	1.3	0.1	0.0	3.6	---	5.0	22	---	---	---
6604	67-77	Btg6	0.12	4.9	0.0	1.9	0.1	0.0	5.1	---	7.1	24	---	---	---
6605	77-80	BC	0.09	5.0	0.1	1.1	0.1	0.1	2.7	---	4.1	28	2	---	---
Kirbyville (2,3)															
S00TX-457-003															
6614	0-6	A	1.98	5.8	3.9	0.8	0.0	0.1	---	---	---	55	1	---	---
6615	6-13	AE	0.83	5.5	0.9	0.1	0.0	0.1	---	---	---	24	2	---	---
6616	13-19	E	0.17	5.1	0.4	0.4	0.0	0.1	1.5	---	2.4	23	3	---	---
6617	19-24	Bt/E1	0.19	5.2	1.2	0.9	0.0	0.1	2.1	---	4.3	35	2	---	---
6618	24-36	Bt/E2	0.16	5.2	1.8	1.3	0.0	0.1	1.5	---	4.7	46	1	---	---
6619	36-56	Bt/Eg	0.07	5.1	0.6	0.7	0.0	0.1	2.2	---	3.6	26	2	---	---
6620	56-68	Btv/Eg	0.07	5.0	0.5	0.9	0.0	0.1	2.8	---	4.3	24	2	---	---
6621	68-80	B't/E'g	0.07	4.8	0.7	1.4	0.1	0.1	3.9	---	6.2	28	1	---	---
Kirbyville (1,7)															
S06TX-457-001															
07N01930	0-8	Ap	---	4.8	3.0	0.5	0.1	---	0.5	9.6	4.1	27	---	12	1.56
07N01931	8-20	Ep	---	5.4	1.4	0.4	0.1	---	0.4	3.7	2.3	34	---	17	0.31
07N01932	20-26	Bt/E1	---	4.9	0.8	0.5	TR	---	0.8	4.5	2.1	22	---	38	0.29
07N01933	26-35	Bt/E2	---	5.1	1.1	1.1	0.1	---	1.2	6.8	3.5	25	---	34	0.24
07N01934	35-44	Btcv/E1	---	5.2	1.1	1.1	0.1	---	1.0	6.0	3.3	28	---	30	0.23
07N01935	44-74	Btcv/E2	---	5.3	0.9	1.0	TR	---	0.8	4.4	2.7	30	---	30	0.22
07N01936	74-80	Btv/Eg	---	5.2	1.1	1.4	0.1	---	0.9	5.5	3.5	32	---	26	0.24

See footnotes at end of table

Table 32.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases					Total Acid- ity	Cation Exchange capacity (effect- ive)	Base satura- tion (sum)	Exchange- able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
					Ca	Mg	K	Na	Al						
	In		Pct	pH	---- Meq/100gm ----							Pct	Pct	Pct	
Kountze (2,3)															
S96TX-199-002															
6007	0-6	A	1.49	5.3	1.8	0.4	0.1	0.1	0.0	---	2.4	44	2	0	1.69
6008	6-17	E	0.26	4.9	0.5	0.4	0.0	0.1	0.1	---	1.1	29	3	9	0.83
6009	17-25	E/Bt	0.11	4.8	0.6	0.5	0.0	0.1	0.2	---	1.4	31	3	14	0.59
6010	25-43	Bt/E	0.13	4.8	1.2	0.7	0.0	0.1	0.4	---	2.4	48	2	17	0.45
6011	43-54	Bt/Eg	0.11	4.7	1.3	1.1	0.0	0.1	0.5	---	3.0	51	2	17	0.37
6012	54-73	Btv/Eg1	0.07	4.2	0.6	0.7	0.0	0.1	1.2	---	2.6	31	2	46	0.39
6013	73-80	Btv/Eg2	0.05	4.3	0.5	0.6	0.0	0.1	1.7	---	2.9	28	2	59	0.41
Nona (2,3)															
S96TX-199-008															
6049	0-3	0.53	0.53	4.4	0.4	0.2	0.0	0.2	0.7	---	1.5	21	5	47	1.39
6050	3-7	0.25	0.25	4.5	0.4	0.2	0.0	0.1	0.7	---	1.4	23	3	50	0.97
6051	7-19	0.16	0.16	4.9	0.5	0.2	0.0	0.2	0.7	---	1.7	32	6	41	0.86
6052	19-38	0.2	0.20	4.9	1.5	1.6	0.1	0.4	2.5	---	6.1	36	4	41	0.48
6053	38-53	0.16	0.16	4.7	3.2	3.3	0.2	0.7	3.4	---	10.8	49	5	31	0.44
6054	53-72	0.09	0.09	4.6	3.6	3.6	0.2	1.0	1.8	---	10.2	60	7	18	0.56
6055	72-80	0.06	0.06	4.3	5.7	7.5	0.4	1.6	1.7	---	16.9	70	7	10	0.60
Otanya (2,3)															
S98TX-457-001															
6295	0-6	Ap	1.30	5.1	1.1	0.4	0.1	0.1	0.6	---	2.3	30	2	---	---
6296	6-12	E	0.45	4.9	0.4	0.2	0.0	0.1	0.4	---	1.1	22	3	---	---
6297	12-19	E/Bt	0.15	4.9	0.6	0.4	0.0	0.1	0.6	---	1.7	31	3	---	---
6298	19-28	Bt	0.20	4.7	0.5	0.6	0.1	0.1	2.8	---	4.1	20	2	---	---
6299	28-43	Btc1	0.11	4.8	0.6	0.9	0.1	0.1	2.8	---	4.5	24	1	---	---
6300	43-60	Btc2	0.08	4.7	0.7	1.0	0.1	0.2	2.2	---	4.2	32	3	---	---
6301	60-77	B't1	0.08	4.8	0.8	1.1	0.1	0.1	2.1	---	4.2	32	2	---	---
6302	77-80	B't2	0.07	4.7	0.8	1.1	0.1	0.1	2.3	---	4.4	31	1	---	---
Pinetucky (1,3)															
S04TX-457-004															
04N05274	0-5	Ap		5.2	1.4	0.3	0.1	---	0.4	7.1	2.2	20	---	18	0.98
04N05275	5-9	E		5.6	1.0	0.2	TR	---	---	3.4	---	26	---	---	0.38
04N05276	9-15	Bt		5.0	1.3	0.3	0.1	---	1.2	6.6	3.2	23	---	38	0.21
04N05277	15-25	Btv1		4.9	0.7	0.8	0.1	---	2.7	11.6	4.3	12	---	63	0.17
04N05278	25-38	Btv2		4.9	TR	0.8	0.1	---	2.8	9.6	3.7	9	---	76	0.17
04N05279	38-62	Bt/C		4.8	---	0.9	0.1	---	2.3	7.5	3.3	12	---	70	0.16
04N05280	62-80	CBt		4.8	0.1	1.0	0.1	---	1.8	7.1	3.0	14	---	60	0.15
Plank (1,3)															
S94TX-199-005															
95P1015S	0-3	A	1.75	4.1	0.5	0.1	TR	---	1.7	---	2.3	9	---	74	1.37
95P1016S	3-24	Bg1	0.16	4.6	TR	TR	---	0.10	0.9	---	1.0	5	---	90	0.56
95P1017S	24-35	Bg2	0.06	4.8	0.1	TR	TR	---	1.6	---	1.7	3	---	94	0.49
95P1018S	35-65	Btg1	0.07	5.1	0.5	0.4	TR	TR	1.9	---	2.8	20	---	68	0.53
95P1019S	65-80	Btg2	0.01	5.1	0.7	0.7	TR	0.30	0.9	---	2.6	46	---	35	0.54

See footnotes at end of table

Table 32.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases Ca	Mg	K	Na	Al	Total Acid-ity	Cation Exchange capacity (effect-ive)	Base satura-tion (sum)	Exchange-able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
	In		Pct	pH	Meq/100gm							Pct	Pct	Pct	
Sawlit (1,3)															
S05TX-457-002															
05N04284	0-9	Ap	---	4.8	0.4	0.1	TR	TR	1.0	7.0	1.5	7	1	67	1.21
05N04285	9-12	E	---	4.8	0.1	0.1	0.1	TR	1.2	2.6	1.5	10	1	80	0.49
05N04286	12-25	Bt/E1	---	4.8	0.6	0.5	0.1	0.1	5.3	8.9	6.6	13	1	80	0.44
05N04287	25-31	2Bt/E1	---	4.7	1.4	0.8	0.1	0.2	8.6	13.3	11.1	16	2	77	0.45
05N04288	31-43	2Bt/E2	---	4.9	2.6	1.0	0.1	0.3	9.0	14.6	13.0	22	2	69	0.48
05N04289	43-57	2Btss/E1	---	5.0	4.7	1.2	0.2	0.4	7.2	13.4	13.7	33	3	53	0.46
05N04290	57-80	2Btss/E2	---	5.2	7.6	1.7	0.2	0.6	4.5	9.4	14.6	52	3	31	0.53
Sawlit (1,8)															
S05TX-457-004															
05N04296	0-5	Ap	---	4.6	0.9	0.3	TR	0.1	1.2	6.5	2.5	17	2	48	0.94
05N04297	5-14	E	---	4.9	0.6	0.2	TR	TR	1.6	4.6	2.4	15	1	67	0.54
05N04298	14-20	E/Bt	---	4.7	0.8	0.5	TR	TR	3.4	6.3	4.7	17	1	72	0.64
05N04299	20-32	Bt/E	---	4.8	1.3	0.9	0.1	0.1	5.8	12.6	8.2	16	1	71	0.56
05N04300	32-53	2Bt/E1	---	4.8	2.5	1.1	0.1	0.2	9.5	15.3	13.4	20	1	71	0.52
05N04301	53-80	2Bt/E2	---	5.0	6.2	1.1	0.1	0.5	6.2	11.3	14.1	41	3	44	0.58
Sawtown (1,3)															
S05TX-457-001															
05N04277	0-8	Ap	---	5.0	5.6	0.5	0.2	TR	0.1	7.5	6.4	6.3	TR	2	1.42
05N04278	8-17	E1	---	6.0	0.7	0.1	TR	TR	---	0.4	---	0.8	2	---	0.38
05N04279	17-19	E2	---	5.4	0.6	0.1	TR	TR	---	0.6	---	0.7	2	---	0.33
05N04280	19-36	Bt1	---	5.3	2.5	1.7	0.2	TR	0.3	2.6	4.7	4.4	TR	6	0.38
05N04281	36-49	Bt2	---	4.8	1.6	1.2	0.1	TR	1.8	4.6	4.7	2.9	TR	38	0.38
05N04282	49-60	2Bt/E1	---	4.7	1.6	1.2	0.1	TR	2.5	5.6	5.4	2.9	1	46	0.38
05N04283	60-80	2Bt/E2	---	4.7	2.1	1.4	0.1	0.1	3.3	7.1	7.0	3.7	1	47	0.41
Silsbee (2,3)															
S99TX-199-005															
4982	0-5	A	0.99	4.5	0.2	0.2	0.1	0.1	1.0	---	1.6	15	3	63	4.00
4983	5-15	E	0.42	4.9	0.3	0.2	0.1	0.1	0.5	---	1.2	25	4	42	1.40
4984	15-30	Bt1	0.22	5.3	1.9	1.0	0.1	0.1	0.9	---	4.0	45	1	23	0.26
4985	30-49	Bt2	0.09	5.2	1.1	0.9	0.1	0.1	1.4	---	3.6	35	2	39	0.23
4986	49-58	Bt3	0.08	5.1	1.0	0.8	0.1	0.1	1.9	---	3.9	31	2	49	0.24
4987	58-71	Bt4	0.06	5.1	0.8	0.7	0.1	0.1	1.3	---	3.0	29	2	43	0.24
4988	71-80	Bt5	0.07	5.1	0.8	0.8	0.0	0.1	1.2	---	2.9	28	2	41	0.27

See footnotes at end of table

Table 32.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases Ca	Mg	K	Na	Al	Total Acid- ity	Cation Exchange capacity (effect- ive)	Base satura- tion (sum)	Exchange- able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
	In		Pct	pH	Meq/100gm							Pct	Pct	Pct	
Sorter (2,9)															
S00TX-457-002															
6606	0-4	Ap	1.90	4.6	0.9	0.2	0.1	0.1	1.0	---	2.3	21	2	---	---
6607	4-11	Bg1	0.37	4.6	0.1	0.1	0.0	0.0	1.1	---	1.3	7	---	---	---
6608	11-18	Bg2	0.29	4.5	0.1	0.0	0.0	0.1	1.2	---	1.4	7	3	---	---
6609	18-30	Btg/Eg	0.20	4.6	0.1	0.1	0.0	0.1	1.7	---	2.0	9	3	---	---
6610	30-48	Bt/Eg	0.10	4.5	0.2	0.1	0.0	0.3	2.3	---	2.9	16	8	---	---
6611	48-59	Btg/E	0.09	4.5	0.3	0.2	0.0	0.1	2.3	---	2.9	15	3	---	---
6612	59-76	B'tg/E'g	0.07	4.8	0.7	0.4	0.0	0.2	1.8	---	3.1	36	6	---	---
6613	76-80	B't/E'g	0.06	5.0	1.2	0.6	0.0	0.1	2.2	---	4.1	38	2	---	---
Spurger (2,4)															
S96TX-199-003															
6014	0-5	A	2.08	4.7	1.7	0.6	0.1	0.1	0.6	---	3.1	27	1	19	1.37
6015	5-11	E	0.44	4.6	0.8	0.4	0.0	0.1	0.9	---	2.2	27	2	41	0.53
6016	11-25	Bt	0.50	4.2	0.5	3.7	0.3	0.3	14.6	---	19.4	17	1	75	0.50
6017	25-37	Btss	0.38	4.2	0.2	5.9	0.3	0.4	16.9	---	23.7	21	1	71	0.52
6018	37-50	Bss1	0.31	4.1	0.2	5.8	0.3	0.5	14.4	---	21.2	23	2	68	0.53
6019	50-58	Bss2	0.26	4.2	0.1	4.8	0.3	0.5	10.6	---	16.3	23	2	65	0.52
6020	58-74	Btg	0.19	4.3	0.2	5.4	0.2	0.3	8.5	---	14.6	39	2	58	0.52
6021	74-80	Bt/Eg	0.08	4.6	0.1	1.4	0.1	0.2	3.1	---	4.9	30	3	63	0.52
Turkey (1,3)															
S94TX-199-002															
95P00991	0-5	A	1.12	4.8	0.8	0.1	TR	0.2	0.4	5.9	1.5	16	5	27	0.97
95P00992	5-10	E	0.25	5.4	0.3	TR	TR	0.2	0.2	2.4	0.7	17	10	29	0.48
95P00993	10-20	Bw1	0.11	5.4	0.3	TR	TR	0.2	0.1	1.5	0.6	25	15	17	0.29
95P00994	20-33	Bw2	0.07	5.4	---	TR	TR	0.1	TR	0.8	---	33	10	---	0.24
95P00995	33-52	Bw3	0.05	5.0	0.1	---	TR	0.1	0.2	1.5	0.4	12	11	50	0.20
95P00996	52-80	BC	0.04	5.1	---	---	TR	0.1	0.5	1.8	0.6	5	9	83	0.21
Tyden (1,3)															
S94TX-199-003															
95P00997	0-6	A1	6.33	3.8	0.1	0.1	0.3	0.6	3.0	23.1	4.1	5	4	73	4.33
95P00998	6-13	A2	1.69	3.9	---	---	0.1	0.2	2.2	11.3	2.5	3	2	88	1.84
95P00999	13-19	A/Eg	0.58	4.2	---	---	TR	0.3	2.7	3.9	3.0	7	8	90	1.09
95P01000	19-28	E/Btg1	0.08	4.2	0.1	TR	---	0.1	1.0	1.9	1.2	10	6	83	0.47
95P01001	28-41	E/Btg2	0.06	4.0	0.1	---	---	0.1	1.4	8.7	1.6	2	5	88	0.46
95P01002	41-58	Btgx/E	0.04	4.1	---	0.2	---	0.2	1.6	2.8	2.0	13	8	80	0.47
95P01003	58-73	Btg/E1	0.04	4.4	0.3	0.4	---	0.1	1.3	3.4	2.1	19	4	62	0.42
95P01004	73-82	Btg/E2	0.06	4.1	0.3	0.8	TR	0.1	2.4	4.8	3.6	20	3	67	0.43
95P01005	82-89	Btg/E3	0.08	5.0	1.8	1.9	TR	0.1	0.5	3.3	4.3	54	2	12	0.38

See footnotes at end of table

Table 32.--Chemical Analyses of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Organic carbon	pH 1:1 (soil: water)	Extractable bases: Ca	Mg	K	Na	Al	Total Acid-ity	Cation Exchange capacity (effect-ive)	Base satura-tion (sum)	Exchange-able sodium (ESP)	Aluminum saturation	Ratio CEC to Clay
	In		Pct	pH	Meq/100gm							Pct	Pct	Pct	
Votaw (2,3)															
S95TX-199-004															
4974	0-4	A	0.99	5.0	0.4	0.1	0.1	0.1	0.6	---	1.3	19	3	46	3.70
4975	4-9	Bw1	0.38	5.2	0.1	0.1	0.0	0.2	0.3	---	0.7	17	9	43	1.44
4976	9-15	Bw2	0.26	5.4	0.1	0.1	0.0	0.3	0.1	---	0.6	29	18	17	1.89
4977	15-25	Bw3	0.13	5.6	0.3	0.1	0.0	0.1	0.0	---	1.5	33	7	0	1.88
4978	25-29	Bw4	0.10	5.7	0.3	0.1	0.0	0.1	0.0	---	1.2	42	8	0	1.33
4879	29-47	Bw/Eg1	0.04	5.6	0.1	0.0	0.0	0.0	0.0	---	1.0	10	0	0	1.43
4980	47-63	Bw/Eg2	0.09	5.4	0.0	0.0	0.0	0.1	0.1	---	1.4	7	7	50	2.00
4981	63-80	Bg	0.03	5.3	0.0	0.0	0.0	0.1	0.1	---	0.9	11	11	50	3.00
Waller (2,3)															
S00TX-457-004															
6622	0-4	A	1.79	4.8	1.1	0.4	0.0	0.1	1.1	---	2.7	27	2	---	---
6623	4-9	Eg1	0.42	4.9	0.3	0.1	0.0	0.0	1.0	---	1.4	12	---	---	---
6624	9-15	Eg2	0.27	4.9	0.4	0.1	0.0	0.0	1.3	---	1.8	15	---	---	---
6625	15-26	Eg/Btg	0.19	5.0	0.7	0.4	0.0	0.1	1.7	---	2.9	29	2	---	---
6626	26-37	Btg/Eg	0.09	5.1	1.3	0.9	0.0	0.0	2.5	---	4.7	33	---	---	---
6627	37-50	Bt/Eg1	0.11	5.1	1.7	1.3	0.0	0.1	2.0	---	5.1	40	1	---	---
6628	50-65	Bt/Eg2	0.07	5.1	2.0	1.3	0.0	0.1	1.9	---	5.3	47	1	---	---
6629	65-80	Bt/Eg3	0.05	5.1	1.8	1.2	0.0	0.1	1.6	---	4.7	49	2	---	---
Woodville (1,10)															
S05TX-457-003															
05N04291	0-7	Ap	---	5.2	2.9	0.8	0.1	0.1	0.5	14.2	4.4	22	1	11	1.69
05N04292	7-10	Btss1	---	4.9	4.4	5.1	0.3	0.2	12.5	23.7	22.5	30	1	56	0.44
05N04293	10-21	Btss2	---	4.8	2.0	4.2	0.3	0.2	14.2	22.7	20.9	23	1	68	0.47
05N04294	21-49	Btss3	---	4.8	1.5	3.7	0.3	0.2	12.0	20.2	17.7	22	1	68	0.45
05N04295	49-80	Btss4	---	4.7	1.1	3.0	0.2	0.2	9.3	15.0	13.8	23	1	67	0.52

Table 32.--Chemical Analyses of Selected Soils--Continued

Footnotes	
1	Soil Characterization Laboratory, Texas A&M University, College Station, Texas.
2	National Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska.
3	Type location for series in Tyler County.
4	Typifying pedon for Hardin County, Texas.
5	Official series description, not typical pedon.
6	Location: in Woodville, from U.S. Highway 287, 2.9 miles west on U.S. Highway 190; 0.9 mile southwest on CR 1100; 2.95 miles south and southwest on International Paper Seed Orchard Road; 0.1 mile east on lane to property-line fence, 400 feet north, and 75 feet west of fence in replanted pine plantation.
7	Location: in Hardin County, from the intersection of Texas Highway 92 and Farm Road 2827, 1 mile north on Texas Highway 92 to county road, 1.3 miles west on county road to forest road, 0.25 mile north on forest road, and 50 feet west in forest.
8	Location: in Woodville, from the intersection of U.S. Highway 69 and U.S. Highway 190, 5.3 miles north on U.S. Highway 69, 0.5 mile east on Farm Road 3065, 0.8 mile southeast on gravel road to powerline right-of-way, 0.25 mile south on woods road, 450 feet east on adjoining woods road, and 20 feet north into woods.
9	Location: near Warren, from the intersection of Farm Road 2827 and U.S. Highway 69, 5.1 miles west on Farm Road 2827, 1.4 miles west on county road, 1.3 miles south on forest road, 1,9 miles on forest road, and 100 feet on flat in forest.
10	Location: in Woodville, from the intersection of U.S. Highway 69 and U.S. Highway 190, 5.3 miles north on U.S. Highway 69, 0.5 mile east on Farm Road 3065, 0.8 mile southeast on gravel road to powerline right-of-way, 0.25 mile south on woods road, 1,000 feet east on adjoining woods road, and 20 feet south in clearing.

Table 33.--Clay Mineralogy of Selected Soils

(Analysis by National Soil Survey Laboratory, USDA-NRCS, Lincoln, Nebraska. Relatvie Peak Size; 5-Very large; 4-Large; 3-Medium; 2-Small; 1-Very small. Dashes indicate that none of the mineral was detected)

Soil name and sample number	Depth	Horizon	Percentage of clay minerals									
			Montmor-illonite	Mica	Kaolinite	Quartz	Hematite	Goethite	Vermic-ulite	Lepido-crocite	Montmor-illonite -Mica	Non-Crystalline
	In											
Chambliss (1)												
S04TX-457-003												
04N05270	21-33	Bt1			5	1	1	2	2			
04N05272	56-69	Bt3			3	1		1	2			
Choates (1)												
S04TX-457-005												
04N5283	20-26	Bt/E1	2		4	2		1	2	1		
04N5285	40-61	Btv/E1		1	3	2		1	2			
Hillister (1)												
S04TX-457-001												
04N05257	28-35	Bt/E1			3		1	1	1			
04N05259	50-63	C1			5	1	1		1			
Kirbyville (2)												
S06TX-457-001												
07N01932	20-26	Bt/E1			4			1	3			
07N01934	35-44	Btcv/E1	2		4			1				
07N01936	74-80	Btv/Eg	3		4			1	2			
Pinetucky (1)												
S04TX-457-004												
04N05276	9-15	Bt		1	3	1		1	2			
04N05278	25-38	Btv2		1	3	1		1	2			
04N05280	62-80	CBt			3	1	1	1	1			
Sawlit (1)												
S05TX-457-002												
05N04284	0-9	Ap			2	1			2			
05N04286	12-25	Bt/E			3	1		1	2	1		
05N04287	25-31	2Bt/E1	1	1	4	1		1		1	3	
05N04290	57-80	2Btss/E2	3	1	3	2		1				

See footnotes at end of table.

Table 33.--Clay Mineralogy of Selected Soils--Continued

Soil name and sample number	Depth	Horizon	Percentage of clay minerals									
			Montmor-illonite	Mica	Kaolinite	Quartz	Hematite	Goethite	Vermic-ulite	Lepido-crocite	Montmor-illonite -Mica	Non-Crystalline
	In											
Sawlit (3) S05TX-457-004												
05N04296	0-5	Ap										6
05N04298	14-20	E/Bt	1		3	2			3	1		
05N04299	20-32	Bt/E1			3	1		1	3	1		
05N04301	53-80	2Bt/E3	3		3	2		1	2			
Sawtown (1) S05TX-457-001												
05N04277	0-8	Ap			2	1			2			
05N04280	19-36	Bt1			3	1		1	2			
05N04281	36-49	Bt2		1	3	1		1	3			
05N04283	60-80	2Bt/E2		1	3	1		1	2			
Woodville (4) S05TX-457-003												
05N04291	0-7	Ap		2	3	3			2	1		
05N04293	10-21	Btss2		2	3	1		1		1	2	
05N04295	49-80	Btss4		2	4	2		1		2	3	

Footnotes

1 Location of pedon sampled is the same as the pedon given as typical for the series in the section "Soil Series and Their Morphology."

2 Location: in Hardin County, from the intersection of Texas Highway 92 and Farm Road 2827, 1 mile north on Texas Highway 92 to county road, 1.3 miles west on county road to forest road, 0.25 mile north on forest road, and 50 feet west in forest.

3 Location: in Woodville, from the intersection of U.S. Highway 69 and U.S. Highway 190, 5.3 miles north on U.S. Highway 69, 0.5 mile east on Farm Road 3065, 0.8 mile southeast on gravel road to powerline right-of-way, 0.25 mile south on woods road, 450 feet east on adjoining woods road, and 20 feet north into woods.

4 Location: in Woodville, from the intersection of U.S. Highway 69 and U.S. Highway 190, 5.3 miles north on U.S. Highway 69, 0.5 mile east on Farm Road 3065, 0.8 mile southeast on gravel road to powerline right-of-way, 0.25 mile south on woods road, 1,000 feet east on adjoining woods road, and 20 feet south in clearing.

Table 34.--Sand Mineralogy of Selected Soils

Soil name and sample number	Depth	Horizon	Minerals (1) Fine Sand Fraction (Percent by Optical Grain Count—TR=trace)										
			QZ	CD	OP	FE	RA	PR	FK	ZR	TM	OT	AM
	In												
Chambliss (2) S04TX-457-003 04N05270	21-33	Bt1	97	1	TR	1	TR						
Choates (2) S04TX-457-005 04N5283	20-26	Bt/E1	100	TR	TR		TR						
Colmesneil (2) S04TX-457-002 04N05264	29-47	E/Bt1	82	8	TR	TR	3	TR					
Hillister (2) S04TX-457-001 04N05257	28-35	Bt/E1	86	6	4	2	2	TR	TR	TR	TR		
Kirbyville (3) S06TX-457-001 07N01932	20-26	Bt/E1										100	
Pinetucky (2) S04TX-457-004 04N05276	9-15	Bt	100		TR	TR	TR	TR		TR			
Turkey (2) S94TX-199-002 95P00992	5-10	E	96	2	TR		1		1				TR
Tyden (2) S94TX-199-003 95P01000	19-28	E/Btg1	93	7.0	TR				TR				

Footnotes

1 QZ-Quartz; CD-Chert (chalcedony); FE-Iron oxides (goethite); FK-Potassium feldspar; OP-Opaques; PR-Pyroxene; RA-Resistant aggregates; TM-Tourmaline; ZR-Zircon; OT-Other; AM-Amphibole

2 Location of the pedon sampled is the same as the pedon given as typical for series in "Soil Series and Their Morphology."

3 Location: in Hardin County, from the intersection of Texas Highway 92 and Farm Road 2827, 1 mile north on Texas Highway 92 to county road, 1.3 miles west on county road to forest road, 0.25 mile north on forest road, and 50 feet west in forest.

Table 35.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Alazan	Fine-loamy, siliceous, semiactive, thermic Aquic Glossudalfs
Angelina	Fine-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Babco	Coarse-loamy, siliceous, semiactive, thermic Oxyaquic Alorthods
Belrose	Coarse-loamy, siliceous, superactive, thermic Oxyaquic Paleudults
Besner	Coarse-loamy, siliceous, semiactive, thermic Typic Glossudalfs
Bleakwood	Fine-loamy, siliceous, active, acid, thermic Typic Endoaquepts
Bonwier	Fine, mixed, semiactive, thermic Typic Hapludults
Boykin	Loamy, siliceous, active, thermic Arenic Paleudults
Browndell	Clayey, smectitic, thermic, shallow Oxyaquic Hapludalfs
Burkeville	Very-fine, smectitic, thermic Chromic Hapluderts
Caneyhead	Fine-silty, siliceous, active, thermic Typic Glossaqualfs
Chambliss	Siliceous, thermic Psammentic Paleudults
Choates	Loamy, siliceous, semiactive, thermic Arenic Plinthaquic Paleudults
Colita	Fine-loamy, siliceous, active, thermic Typic Glossaqualfs
Colmesneil	Siliceous, thermic Lamellic Paleudults
Corrigan	Fine, smectitic, thermic Oxyaquic Vertic Hapludalfs
Cypress	Fine, mixed, superactive, acid, thermic Typic Fluvaquents
Dallardsville	Coarse-loamy, siliceous, semiactive, thermic Oxyaquic Paleudults
Doucette	Loamy, siliceous, semiactive, thermic Arenic Plinthic Paleudults
Estes	Fine, smectitic, thermic Aeric Dystraquerts
Evadale	Fine-silty, siliceous, active, thermic Typic Glossaqualfs
Hainesville	Thermic, coated Lamellic Quartzipsamments
Hillister	Loamy, siliceous, active, thermic Arenic Hapludults
Iulus	Coarse-loamy, siliceous, active, thermic Fluvaquentic Dystrudepts
Jayhawker	Coarse-silty, siliceous, active, thermic Typic Paleaquults
Kenefick	Fine-loamy, siliceous, active, thermic Ultic Hapludalfs
Kirbyville	Fine-loamy, siliceous, semiactive, thermic Oxyaquic Paleudults
Kitterll	Loamy, siliceous, active, nonacid, thermic, shallow Typic Udorthents
Kountze	Coarse-loamy, siliceous, active, thermic Oxyaquic Paleudults
Koury	Coarse-silty, siliceous, superactive, thermic Oxyaquic Eutrudepts
Laneville	Fine-silty, siliceous, active, thermic Fluvaquentic Eutrudepts
Laska	Coarse-loamy, siliceous, semiactive, thermic Oxyaquic Glossudalfs
Lelavale	Fine-loamy, siliceous, semiactive, thermic Typic Glossaqualfs
Mollville	Fine-loamy, siliceous, active, thermic Typic Glossaqualfs
Newco	Clayey, mixed, semiactive, thermic Aquic Hapludults
Niwana	Coarse-loamy, siliceous, semiactive, thermic Typic Paleudults
Nona	Fine-silty, siliceous, active, thermic Natric Vermaqualfs
Olive	Coarse-loamy, siliceous, superactive, thermic Umbric Fragiaquults
Otanya	Fine-loamy, siliceous, semiactive, thermic Plinthic Paleudults
Ozias	Fine, smectitic, thermic Aeric Dystraquerts
Pinetucky	Fine-loamy, siliceous, semiactive, thermic Plinthic Paleudults
Plank	Coarse-silty, siliceous, active, thermic Natric Vermaqualfs
Pophers	Fine-silty, siliceous, active, acid, thermic Fluvaquentic Endoaquepts
Rayburn	Fine, smectitic, thermic Vertic Hapludalfs
Redco	Very-fine, smectitic, thermic Chromic Dystruderts
Rogan	Fine-loamy, siliceous, semiactive, thermic Plinthic Paleudults
Sawlit	Fine-loamy, siliceous, active, thermic Glossaquic Paleudalfs
Sawtown	Fine-loamy, siliceous, active, thermic Oxyaquic Paleudalfs
Shankler	Loamy, siliceous, semiactive, thermic Grossarenic Paleudults
Silsbee	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Sorter	Coarse-loamy, siliceous, superactive, thermic Natric Vermaqualfs
Spurger	Fine, smectitic, thermic Albaquultic Hapludalfs
Stringtown	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Turkey	Thermic, coated Typic Quartzipsamments
Tyden	Coarse-loamy, siliceous, active, thermic Umbric Paleaquults
Urland	Fine, mixed, active, thermic Typic Hapludults
Votaw	Thermic, coated Oxyaquic Quartzipsamments
Waller	Fine-loamy, siliceous, active, thermic Typic Glossaqualfs
Wiergate	Very-fine, smectitic, thermic Typic Hapluderts
Woodville	Fine, smectitic, thermic Vertic Paleudalfs

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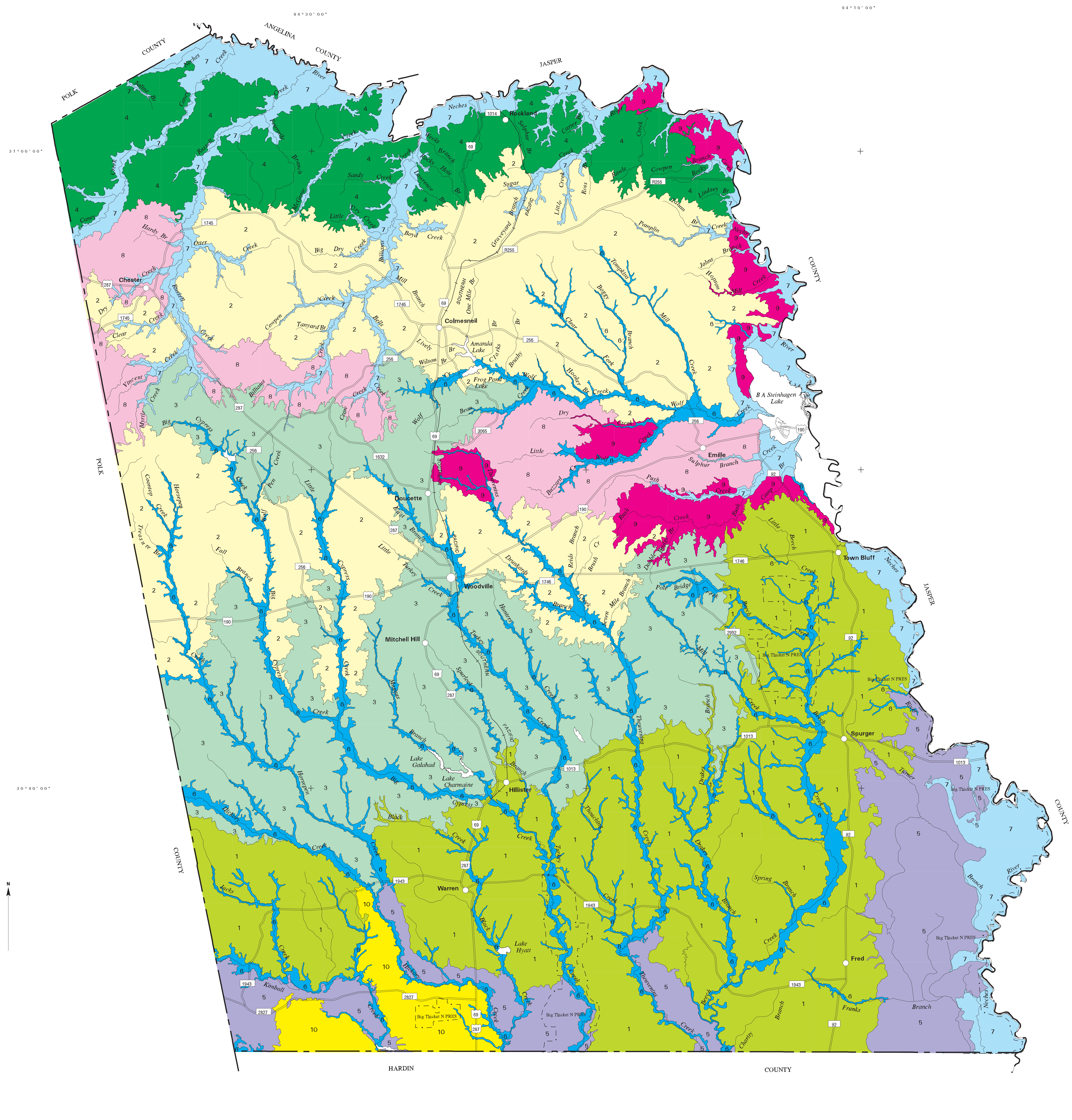


LEGEND

1	Otanya-Kirbyville-Waller
2	Shankler-Hillister-Doucette
3	Pinetucky-Doucette-Stringtown
4	Rayburn-Colita-Corrigan
5	Kenefick-Belrose-Votaw
6	Iulus-Bleakwood
7	Ozias-Estes-Koury
8	Burkeville-Woodville-Redco
9	Sawlit-Woodville-Mollville
10	Dallardsville-Otanya-Kountze

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
TEXAS AGRICULTURAL EXPERIMENT STATION
TEXAS STATE SOIL AND WATER CONSERVATION BOARD

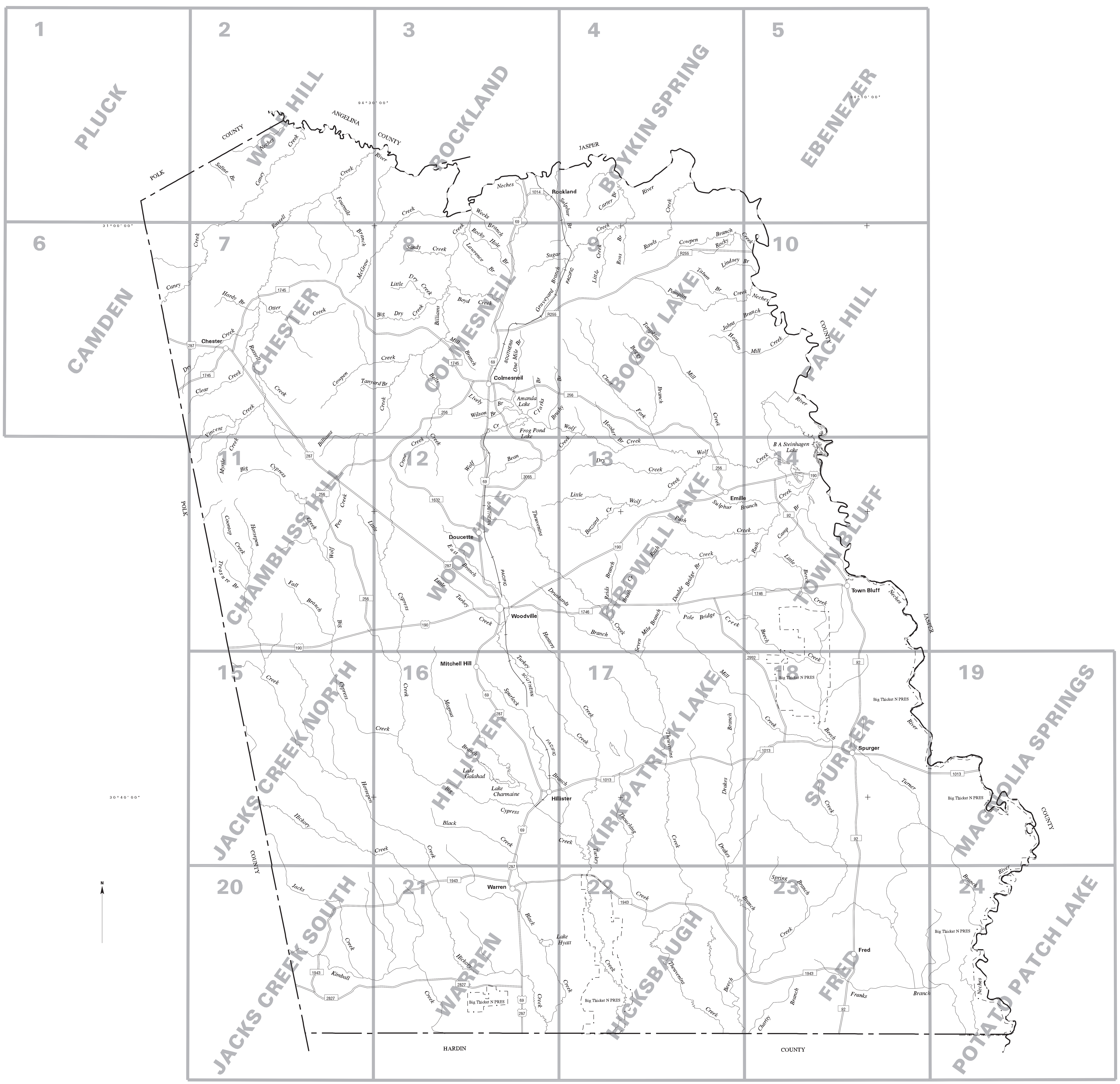
GENERAL SOIL MAP
TYLER COUNTY, TEXAS

MILES 1 0 1 2 3

KILOMETERS 1 0 1 2 3 4 5 6

SCALE = 1:135000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



INDEX TO MAP SHEETS
TYLER COUNTY, TEXAS

MILES
KILOMETERS
SCALE = 1:135000

SOIL LEGEND

Soil map symbols are listed alphabetically. The first letter is always a capital and is the initial letter of the soil name. The second letter is a lowercase letter. The third letter, if used, is a capital and denotes slope class. Symbols that only have capital letters are for miscellaneous areas.

SYMBOL	NAME
AaB	Alazan very fine sandy loam, 0 to 4 percent slopes
BcA	Belrose-Caneyhead complex, 0 to 1 percent slopes
BiB	Belrose loamy very fine sand, 1 to 3 percent slopes
BoB	Boykin loamy sand, 1 to 5 percent slopes
BrC	Browndell-Kitterll complex, 2 to 5 percent slopes
BrD	Browndell-Kitterll complex, stony, 5 to 15 percent slopes
BrG	Browndell-Kitterll complex 15 to 35 percent slopes, very bouldery
BuB	Burkeville clay, 3 to 5 percent slopes
BuD	Burkeville clay, 5 to 15 percent slopes
CgA	Chambliss loamy sand, 0 to 8 percent slopes
CiA	Choates loamy sand, 1 to 5 percent slopes
CkB	Colita fine sandy loam, 1 to 3 percent slopes
CkC	Colita-Laska complex, mounded, 0 to 3 percent slopes
CmB	Colmesneil loamy sand, 1 to 8 percent slopes
CoB	Corrigan loam, 1 to 5 percent slopes
CoE	Corrigan loam, 5 to 15 percent slopes
CyA	Cypress mucky clay, 0 to 1 percent slopes, frequently flooded
DoB	Doucette loamy sand, 1 to 5 percent slopes
EtA	Estes-Angelina complex, 0 to 1 percent slopes, frequently flooded
EvA	Evadale silt loam, 0 to 1 percent slopes
GPI	Pits, gravel
HaA	Hainesville loamy fine sand, 0 to 2 percent slopes
HhD	Hillister loamy sand, 5 to 15 percent slopes
IbA	Iulus-Bleakwood complex, 0 to 1 percent slopes, frequently flooded
JhA	Jayhawker silt loam, 0 to 1 percent slopes
KeB	Kenefick very fine sandy loam, 1 to 3 percent slopes
KfA	Kenefick-Caneyhead complex, 0 to 1 percent slopes
KgA	Kirbyville-Niwana complex, 0 to 1 percent slopes
KiB	Kirbyville fine sandy loam, 0 to 2 percent slopes
KnB	Kountze very fine sandy loam, 0 to 2 percent slopes
KoA	Koury very fine sandy loam, 0 to 1 percent slopes, frequently flooded
Lb	Laneville fine sandy loam, 0 to 1 percent slopes, frequently flooded
LcB	Laska fine sandy loam, 1 to 3 percent slopes
LvA	Lelavale silt loam, 0 to 1 percent slopes, ponded
MpA	Mollville-Besner complex, 0 to 1 percent slopes
NhB	Newco fine sandy loam, 1 to 5 percent slopes
NhD	Newco fine sandy loam, 5 to 15 percent slopes
NoA	Nona-Dallardsville complex, 0 to 1 percent slopes
OiA	Olive-Dallardsville complex, 0 to 1 percent slopes
OtB	Otanya very fine sandy loam, 1 to 3 percent slopes
OtC	Otanya fine sandy loam, 3 to 5 percent slopes
Oz	Ozias-Pophers complex, 0 to 1 percent slopes, frequently flooded
PkA	Plank silt loam, 0 to 1 percent slopes
PmB	Pinetucky fine sandy loam, 1 to 5 percent slopes
RaB	Rayburn fine sandy loam, 1 to 5 percent slopes
RaD	Rayburn fine sandy loam, 5 to 15 percent slopes
ReB	Redco clay, 1 to 3 percent slopes
ReD	Redco clay, 5 to 15 percent slopes
RrB	Rogan gravelly fine sandy loam, 1 to 5 percent slopes
RrF	Rogan soils, 1 to 5 percent slopes, graded
SeD	Sawlit-Sawtown complex, 1 to 3 percent slopes
ShB	Shankler loamy sand, 1 to 8 percent slopes
ShD	Shankler loamy sand, 8 to 15 percent slopes
SiC	Silsbee fine sandy loam, 3 to 5 percent slopes
SiD	Silsbee fine sandy loam, 5 to 12 percent slopes
SnA	Sorter-Dallardsville complex, 0 to 1 percent slopes
SsA	Spurger-Caneyhead complex, 0 to 1 percent slopes
StM	Stringtown-Bonwier complex, 5 to 15 percent slopes
TuB	Turkey sand, 1 to 3 percent slopes
TyA	Tyden-Babco complex, 0 to 1 percent slopes
UrB	Urland fine sandy loam, 1 to 5 percent slopes
VoA	Votaw fine sand, 0 to 1 percent slopes
W	Water
WbA	Waller-Dallardsville complex, 0 to 1 percent slopes
WcB	Wiergate clay, 1 to 3 percent slopes
WnB	Woodville very fine sandy loam, 1 to 5 percent slopes
WnD	Woodville fine sandy loam, 5 to 15 percent slopes
WnS	Woodville-Sawlit complex, 1 to 3 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline and neatline
- Previously published survey

OTHER BOUNDARY

- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

- Divided roads
- Other roads
- Trail

ROAD EMBLEMS AND DESIGNATIONS

- Interstate — 173, 79 345
- Federal — 287, 410 224
- State — 52, 52 347
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE

PIPELINE

FENCE

LEVEES

- Without road
- With road
- With railroad
- Single side slope

DAMS

- Medium or small — W

LANDFORM FEATURES

- Prominent hill or peak
- Soil sample site

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house
- Church
- School
- Other religion — Mt Carmel
- Located object — Ranger Station
- Tank — Petroleum
- Lookout tower
- Oil and/or natural gas wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS

- Perennial stream, double line
- Perennial stream, single line
- Intermittent stream
- Drainage end

DRAINAGE AND IRRIGATION

- Double-line canal — CANAL
- Perennial drainage and/or irrigation ditch
- Intermittent drainage and/or irrigation ditch

SMALL LAKES, PONDS, AND RESERVOIRS

- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

MISCELLANEOUS WATER FEATURES

- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — AaB HaA

LANDFORM FEATURES

- Bedrock escarpment
- Other than bedrock escarpment
- Short steep slope
- Gully
- Depression, closed
- Sinkhole
- Borrow pit
- Gravel pit
- Mine or quarry
- Landfill

MISCELLANEOUS SURFACE FEATURES

- Blowout
- Clay spot
- Gravelly spot
- Lava spot
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
PLUCK QUADRANGLE
SHEET NUMBER 1 OF 24

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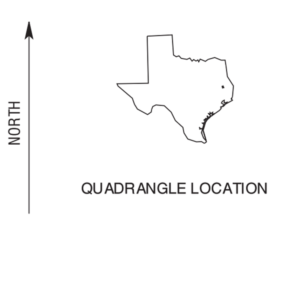

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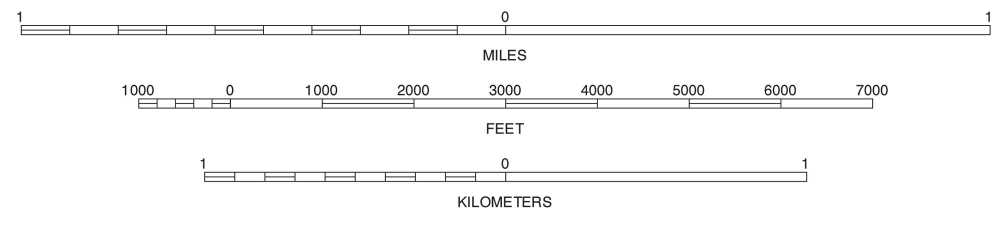

	■	2
	6	7

2 WOLF HILL
6 CAMDEN
7 CHESTER

INDEX TO ADJOINING 7.5 MAPS

PLUCK, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 24

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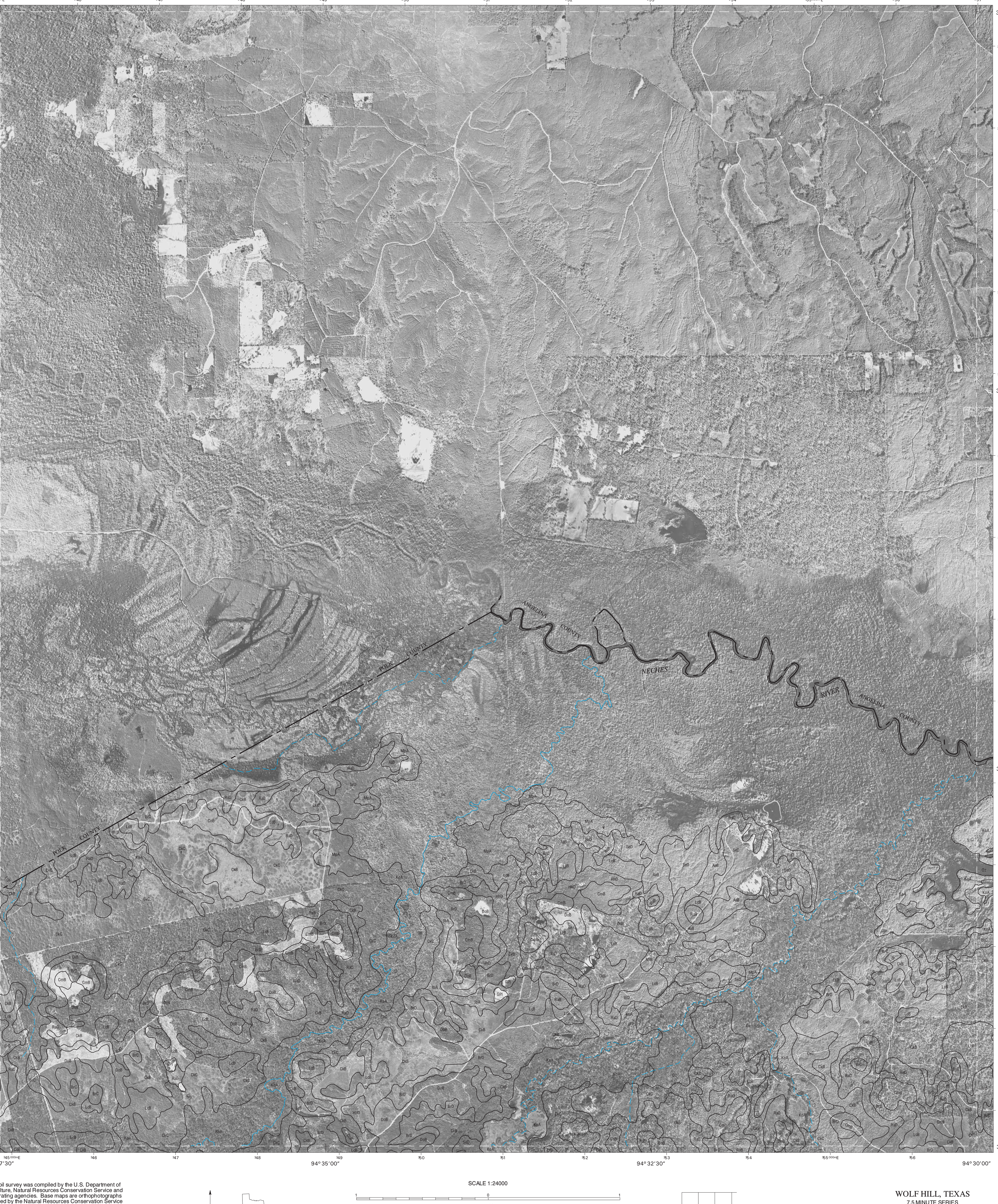
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
WOLF HILL QUADRANGLE
SHEET NUMBER 2 OF 24



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

1		3
6	7	8

1 PLUCK
3 ROCKLAND
6 CAMDEN
7 CHESTER
8 COLMESNEIL

INDEX TO ADJOINING 7.5 MAPS

WOLF HILL, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 24

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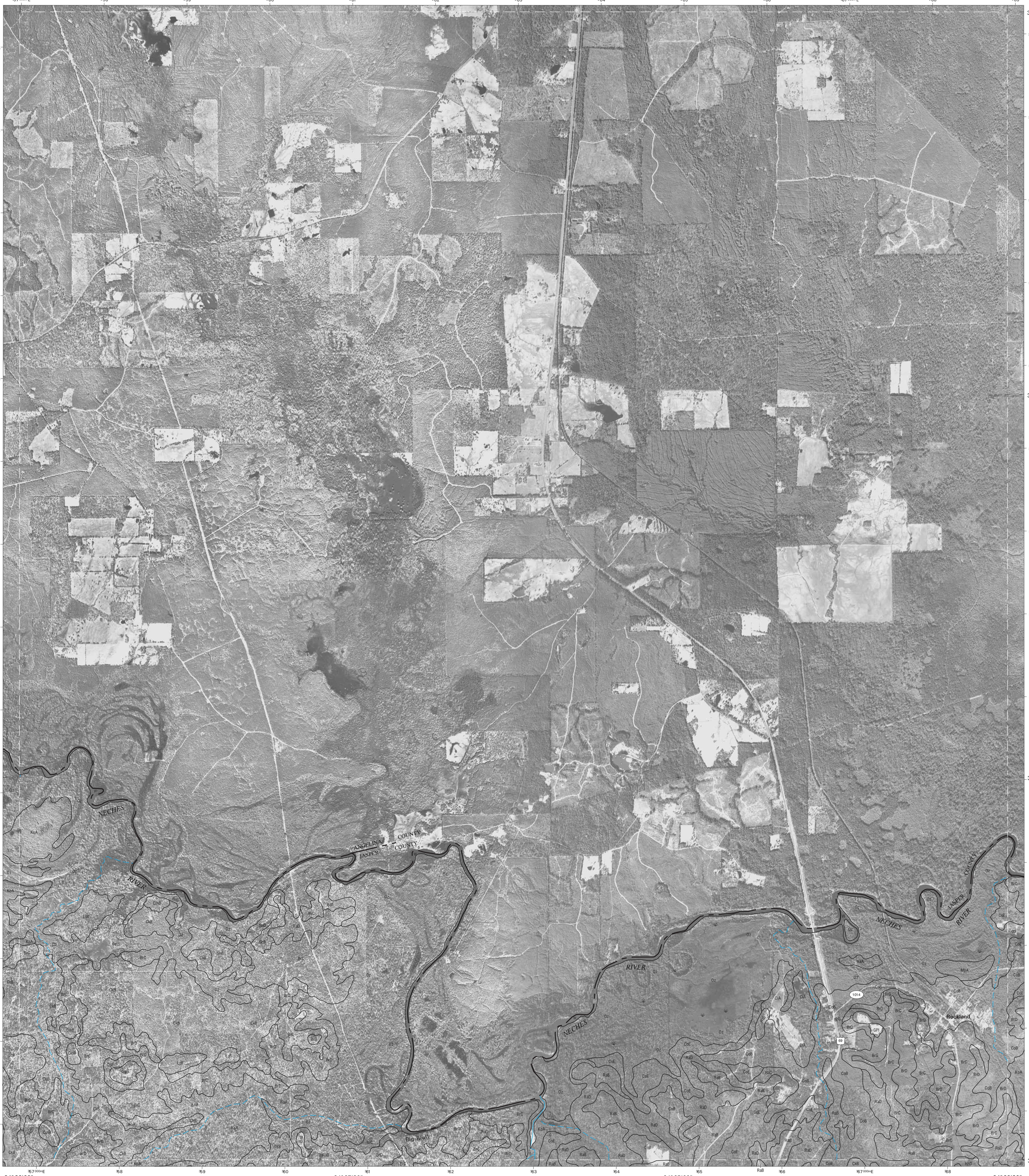
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
ROCKLAND QUADRANGLE
SHEET NUMBER 3 OF 24



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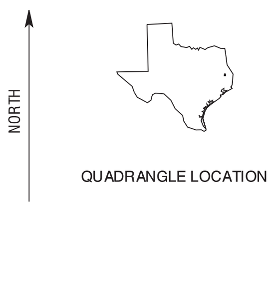
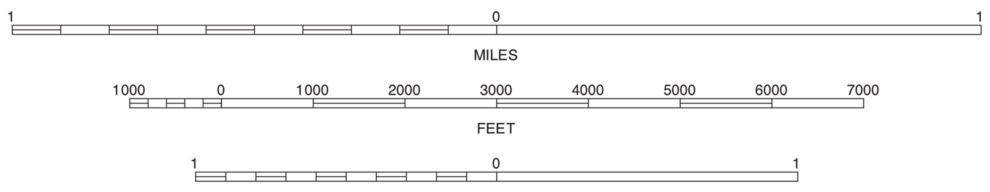
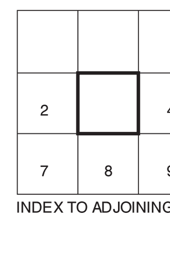


QUADRANGLE LOCATION

SCALE 1:24000





2 WOLF HILL
4 BOYKIN SPRING
7 CHESTER
8 COLMESNEIL
9 BOGGY LAKE

INDEX TO ADJOINING 7.5 MAPS

ROCKLAND, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 24

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
BOYKIN SPRING QUADRANGLE
SHEET NUMBER 4 OF 24

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

3 ROCKLAND
5 EBENEZER
8 COLMESNEIL
9 BOGGY LAKE
10 PACE HILL

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BOYKIN SPRING, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 24

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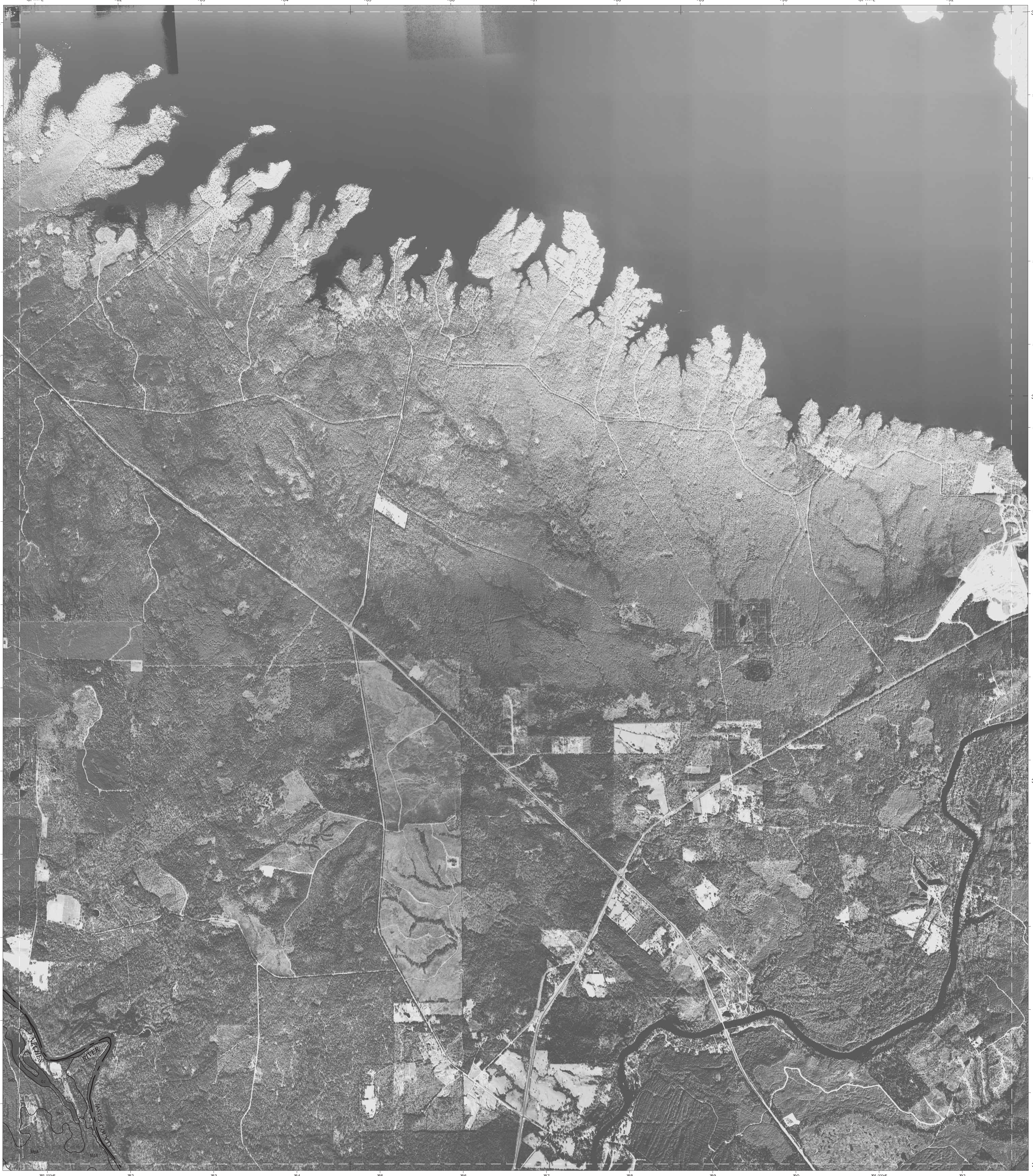
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
EBENEZER QUADRANGLE
SHEET NUMBER 5 OF 24



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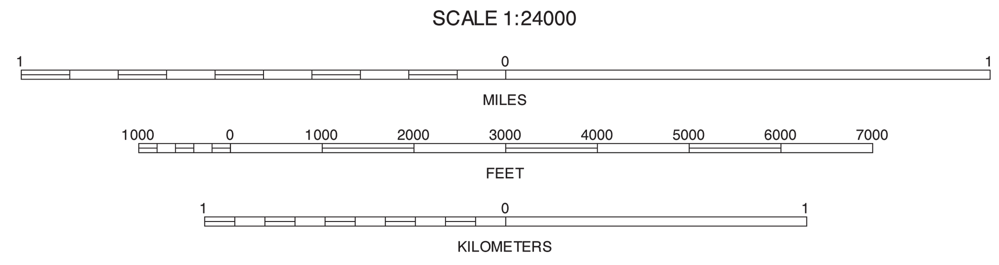

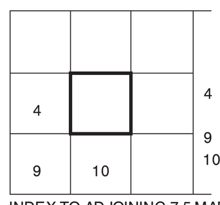

4 BOYKIN SPRING
9 BOGGY LAKE
10 PACE HILL

INDEX TO ADJOINING 7.5 MAPS

EBENEZER, TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 5 OF 24

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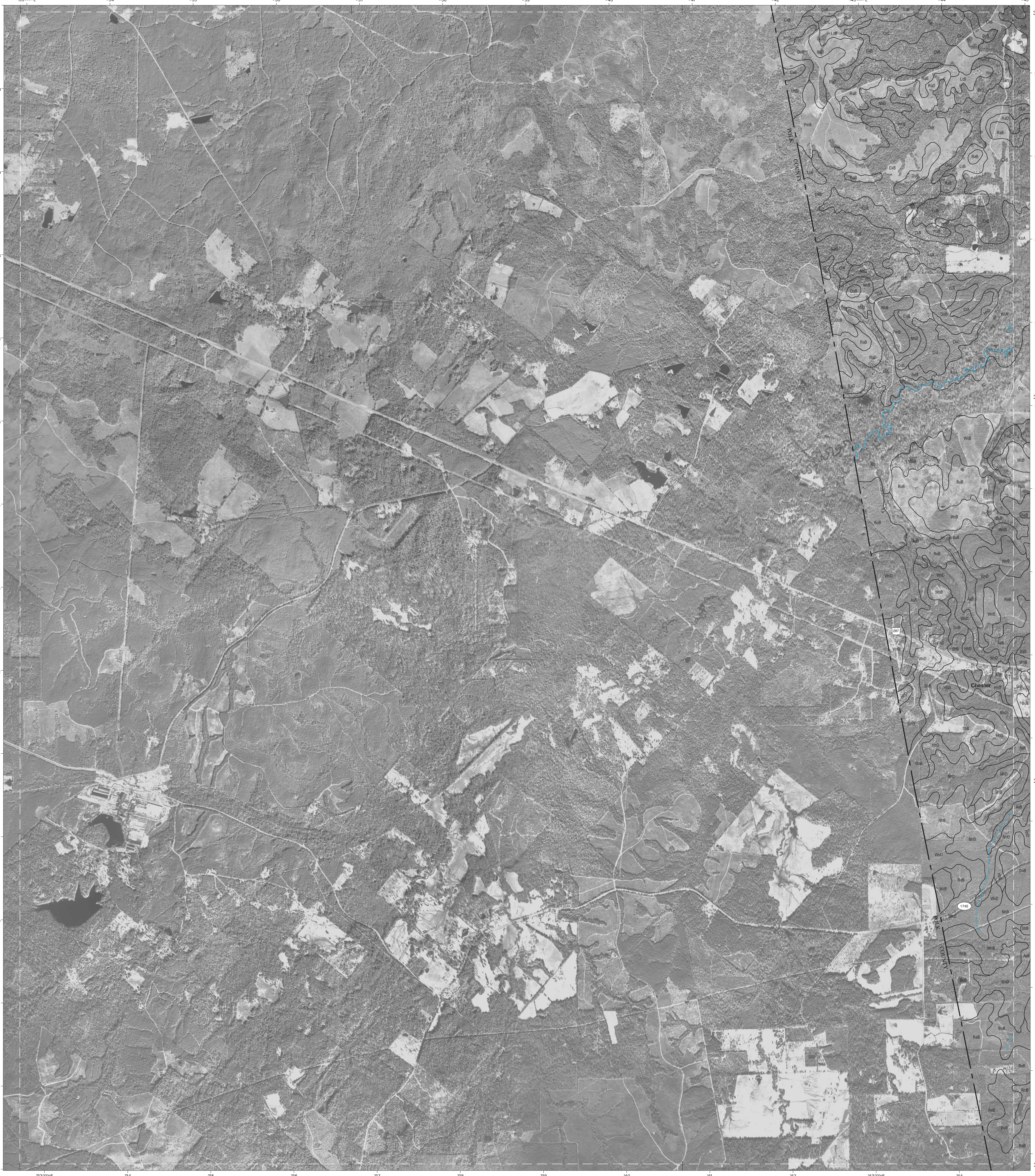
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
CAMDEN QUADRANGLE
SHEET NUMBER 6 OF 24

94° 45′00″ | 94° 42′30″ | 94° 40′00″ | 94° 37′30″

31° 00′00″



30° 57′30″

30° 55′00″

30° 52′30″

94° 45′00″ | 94° 42′30″ | 94° 40′00″ | 94° 37′30″

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NORTH

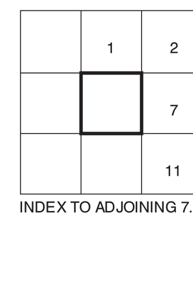
QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS



1 PLUCK
2 WOLF HILL
7 CHESTER
11 CHAMBLISS HILL

INDEX TO ADJOINING 7.5 MAPS

CAMDEN, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 24

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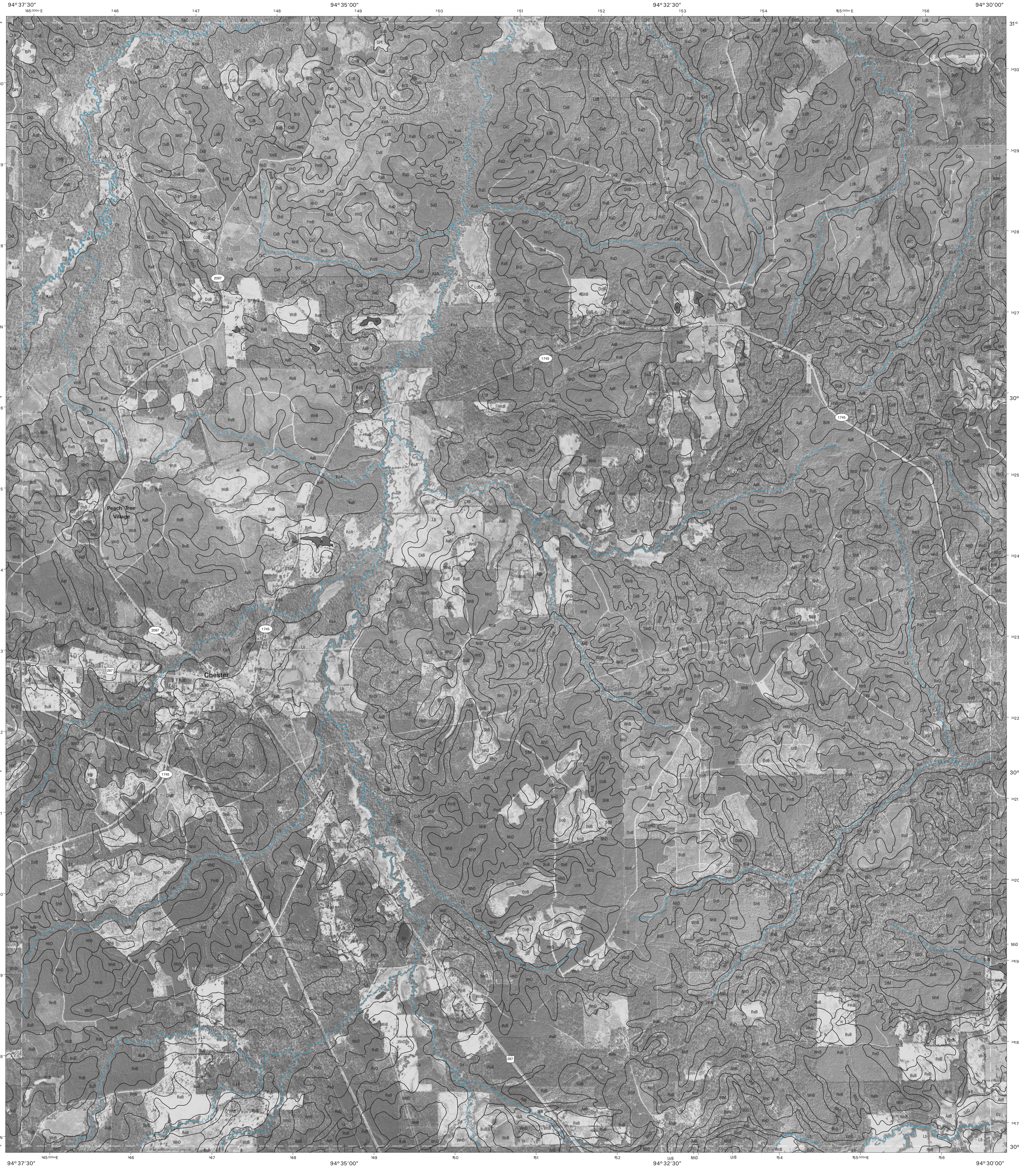
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



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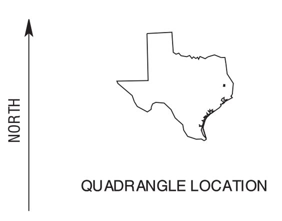

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

1	2	3
6		8
	11	12

1 PLUCK
2 WOLF HILL
3 ROCKLAND
6 CAMDEN
8 COLMESNEIL
11 CHAMBLISS HILL
12 WOODVILLE

INDEX TO ADJOINING 7.5 MAPS

CHESTER, TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 7 OF 24

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
COLMESNEIL QUADRANGLE
SHEET NUMBER 8 OF 24

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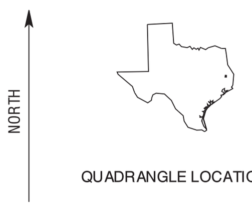
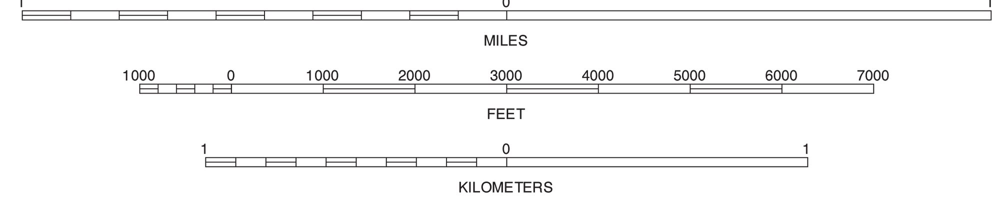
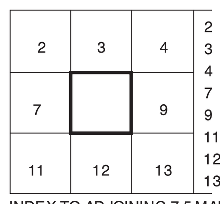


QUADRANGLE LOCATION





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COLMESNEIL, TEXAS

7.5 MINUTE SERIES

SHEET NUMBER 8 OF 24

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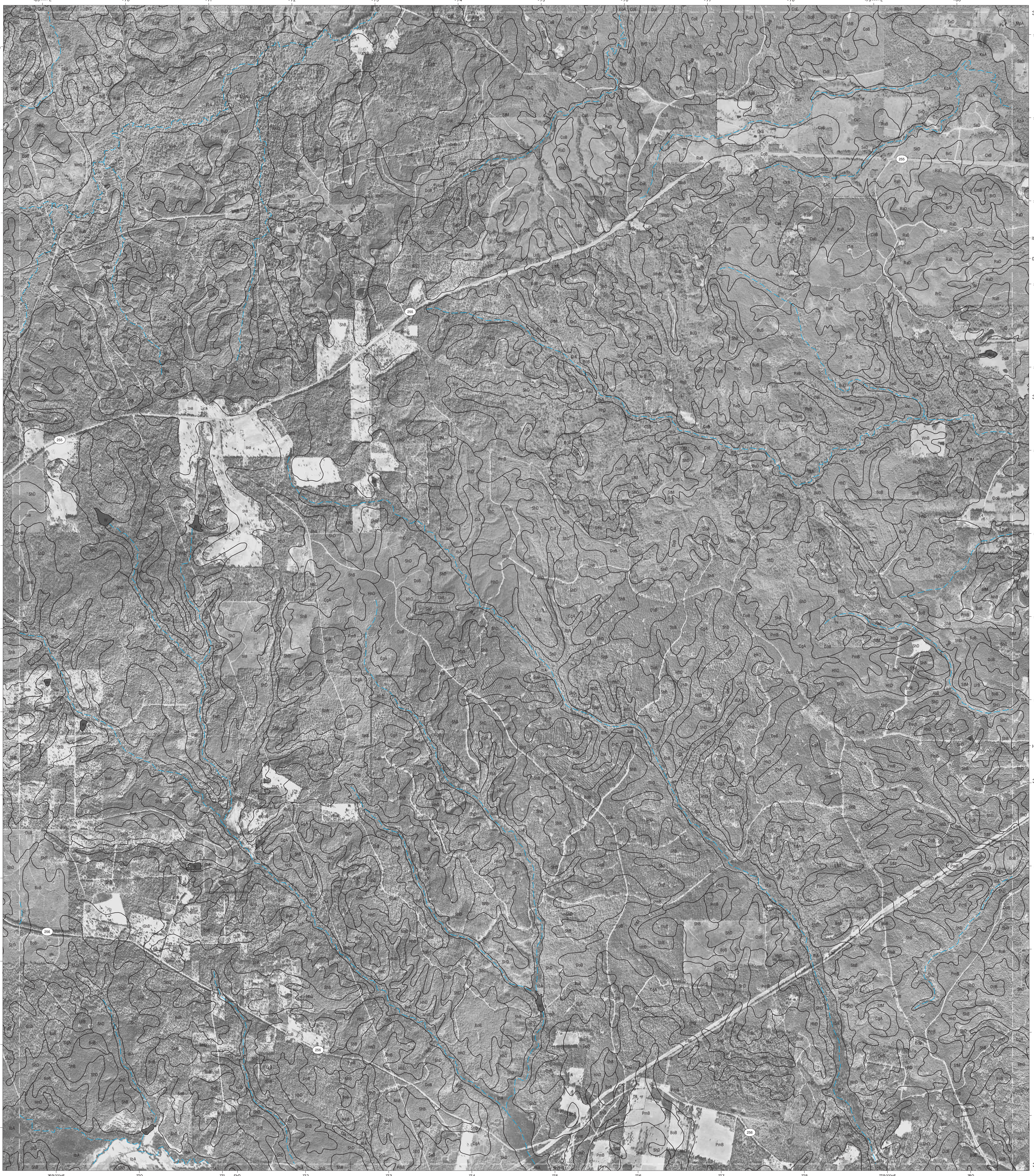

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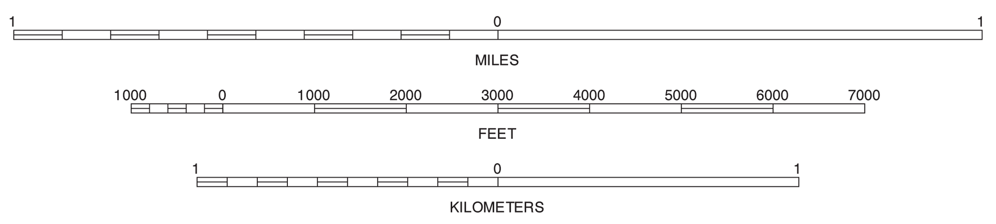
NORTH

QUADRANGLE LOCATION

SCALE 1:24000



3	4	5
8		10
12	13	14

3 ROCKLAND
4 BOYKIN SPRING
5 EBENEZER
8 COLMESNEIL
10 PACE HILL
12 WOODVILLE
13 BIRDWELL LAKE
14 TOWN BLUFF

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BOGGY LAKE, TEXAS

7.5 MINUTE SERIES
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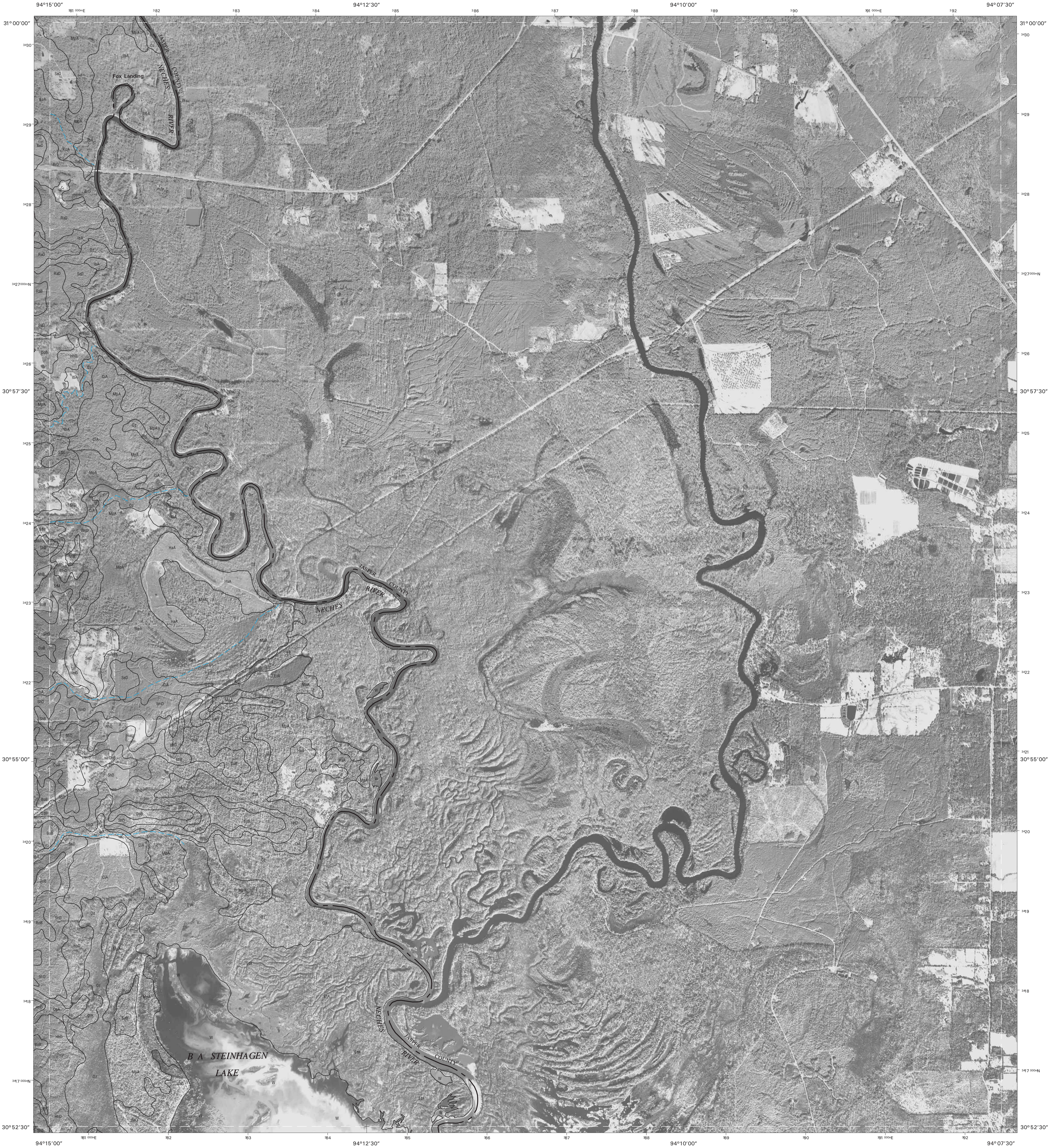
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
PACE HILL QUADRANGLE
SHEET NUMBER 10 OF 24



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

4	5	
9		
13	14	

INDEX TO ADJOINING 7.5 MAPS

4 BOYKIN SPRING
5 EBENEZER
9 BOGGY LAKE
13 BIRDWELL LAKE
14 TOWN BLUFF

PACE HILL, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 24

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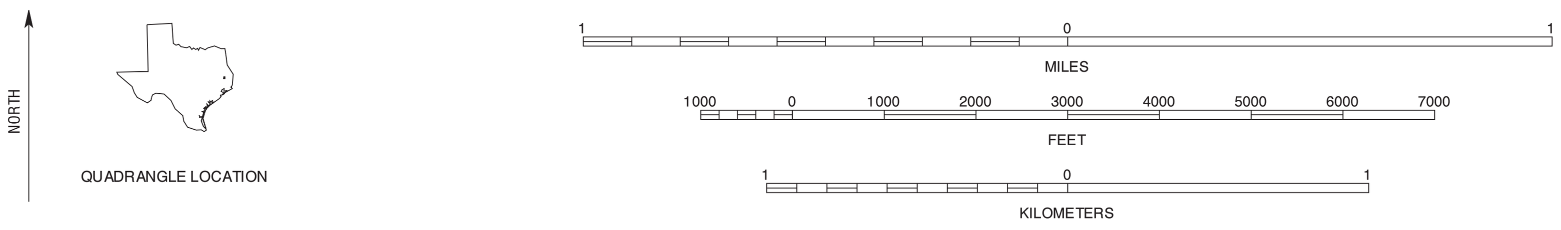

6	7	8
		12
	15	16

6 CAMDEN
7 CHESTER
8 COLMESNEIL
12 WOODVILLE
15 JACKS CREEK NORTH
16 HILLISTER

INDEX TO ADJOINING 7.5 MAPS

CHAMBLISS HILL, (OVERSIZED) TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 11 OF 24

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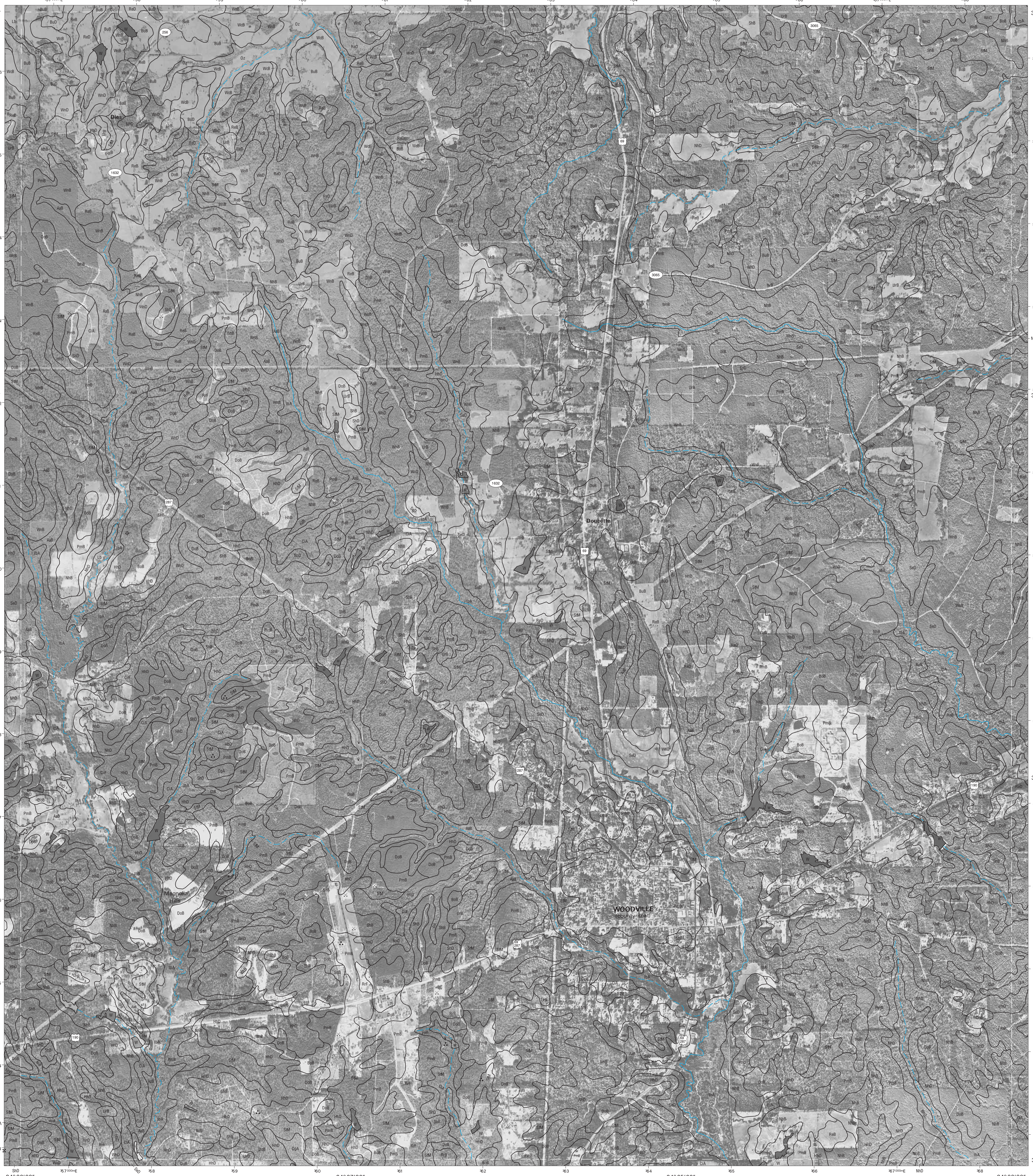

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

7	8	9
11		13
15	16	17

7 CHESTER
8 COLMESNEIL
9 BOGGY LAKE
11 CHAMBLISS HILL
13 BIRDWELL LAKE
15 JACKS CREEK NORTH
16 HILLISTER
17 KIRKPATRICK LAKE

INDEX TO ADJOINING 7.5 MAPS

WOODVILLE, TEXAS

7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
BIRDWELL LAKE QUADRANGLE
SHEET NUMBER 13 OF 24

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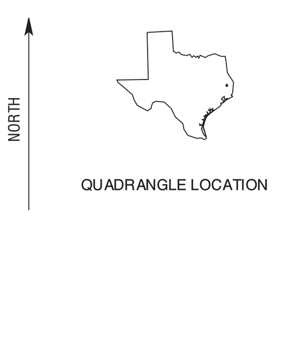

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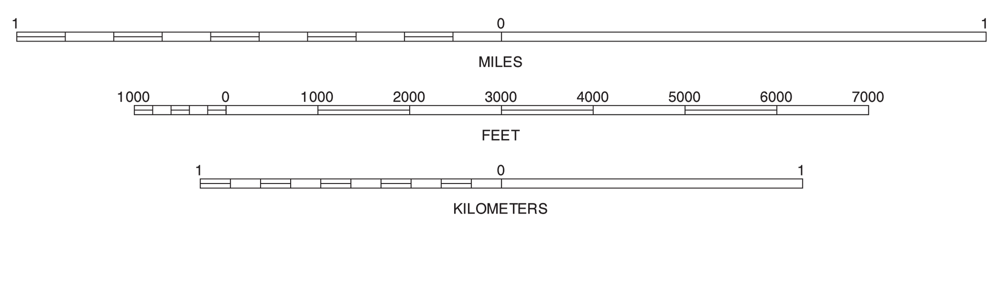

8	9	10
12		14
16	17	18

8 COLMESNEIL
9 BOGGY LAKE
10 PACE HILL
12 WOODVILLE
14 TOWN BLUFF
16 HILLISTER
17 KIRKPATRICK LAKE
18 SPURGER

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BIRDWELL LAKE, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 24

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
TOWN BLUFF QUADRANGLE
SHEET NUMBER 14 OF 24

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

9	10	
13		
17	18	19

9 BOGGY LAKE
10 PACE HILL
13 BIRDWELL LAKE
17 KIRKPATRICK LAKE
18 SPURGER
19 MAGNOLIA SPRINGS

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TOWN BLUFF, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 24

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
JACKS CREEK NORTH QUADRANGLE
SHEET NUMBER 15 OF 24

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	11	12
		16
	20	21

11 CHAMBLISS HILL
12 WOODVILLE
16 HILLISTER
20 JACKS CREEK SOUTH
21 WARREN

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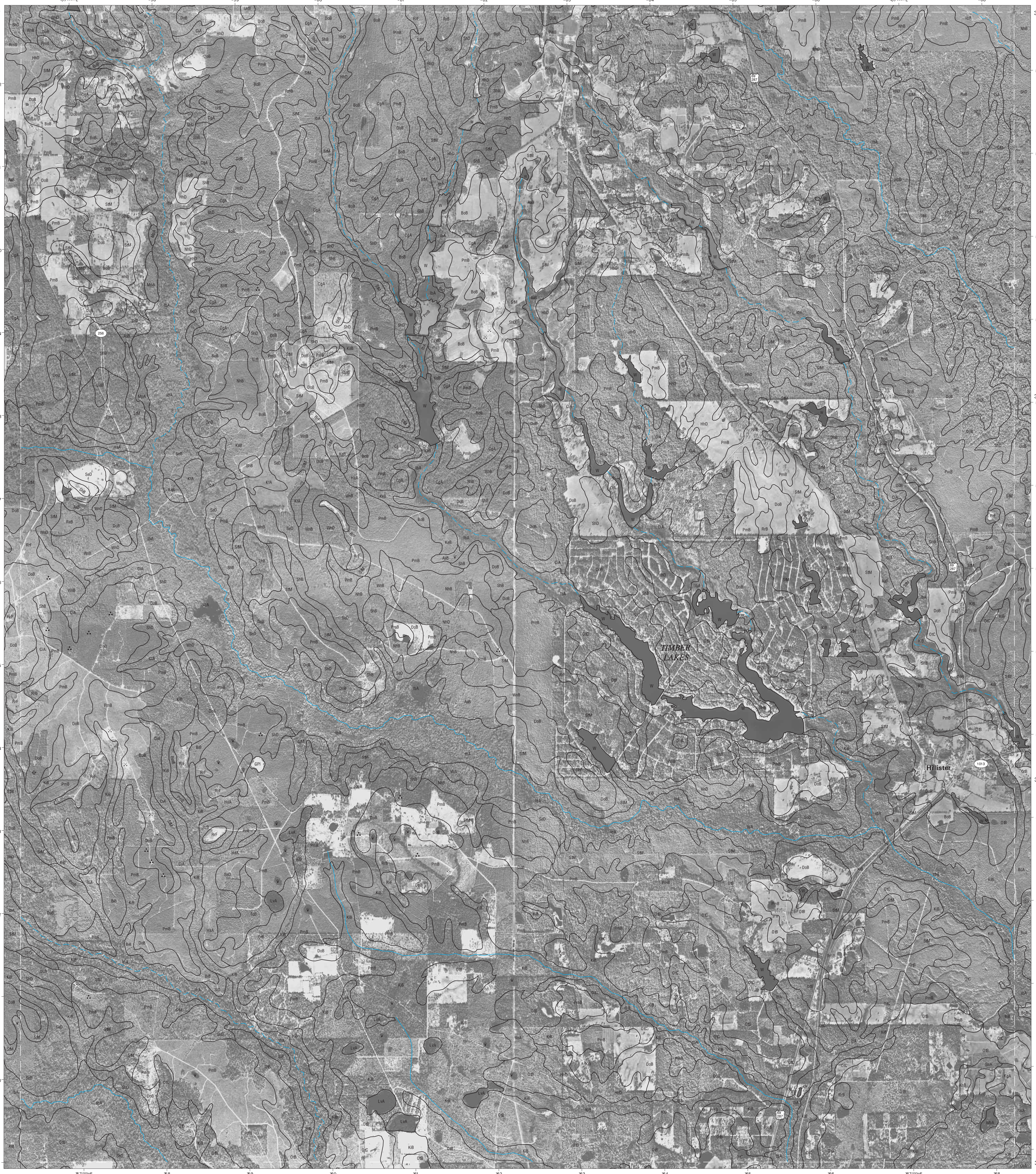
JACKS CREEK NORTH, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 24

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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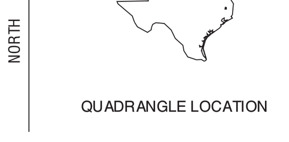
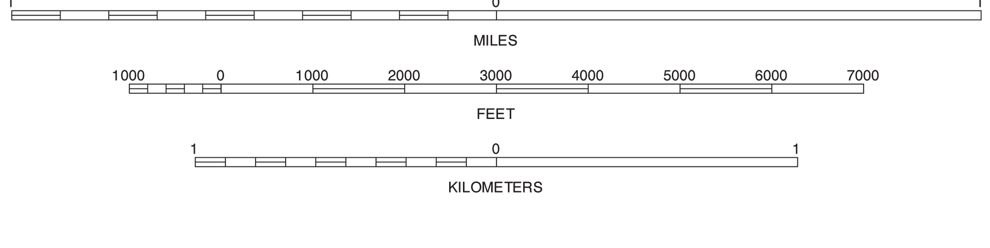
North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.





11	12	13
15		17
20	21	22

11 CHAMBLISS HILL
12 WOODVILLE
13 BIRDWELL LAKE
15 JACKS CREEK NORTH
17 KIRKPATRICK LAKE
20 JACKS CREEK SOUTH
21 WARREN
22 HICKSBAUGH

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HILLISTER, TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 16 OF 24

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
KIRKPATRICK LAKE QUADRANGLE
SHEET NUMBER 17 OF 24

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North American Datum of 1983 (NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 15.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

12	13	14
16		18
21	22	23

12 WOODVILLE
13 BIRDWELL LAKE
14 TOWN BLUFF
16 HILLISTER
18 SPURGER
21 WARREN
22 HICKSBAUGH
23 FRED

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KIRKPATRICK LAKE, TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 17 OF 24

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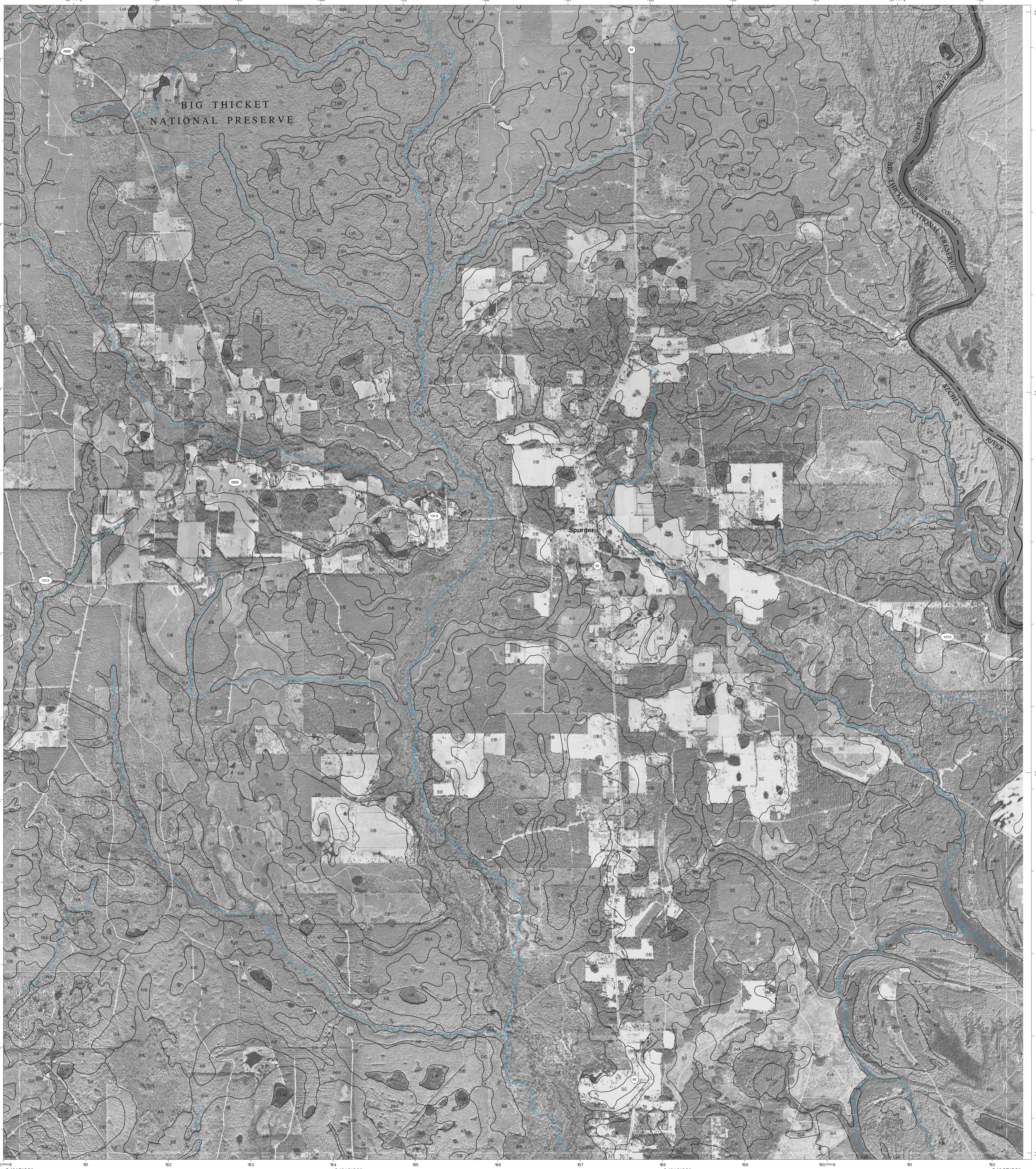
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
SPURGER QUADRANGLE
SHEET NUMBER 18 OF 24



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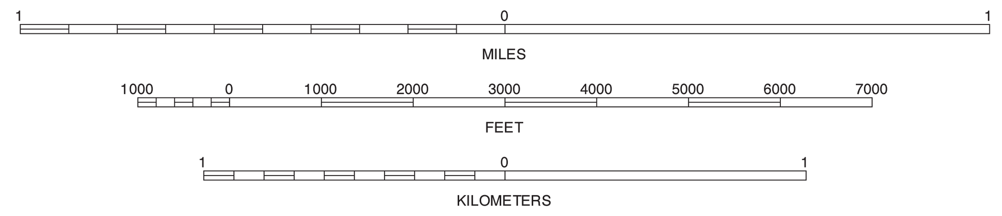
North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000



13	14	
17		19
22	23	24

13 BIRDWELL LAKE
14 TOWN BLUFF
17 KIRKPATRICK LAKE
19 MAGNOLIA SPRINGS
22 HICKSBAUGH
23 FRED
24 POTATO PATCH LAKE

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SPURGER, TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 18 OF 24

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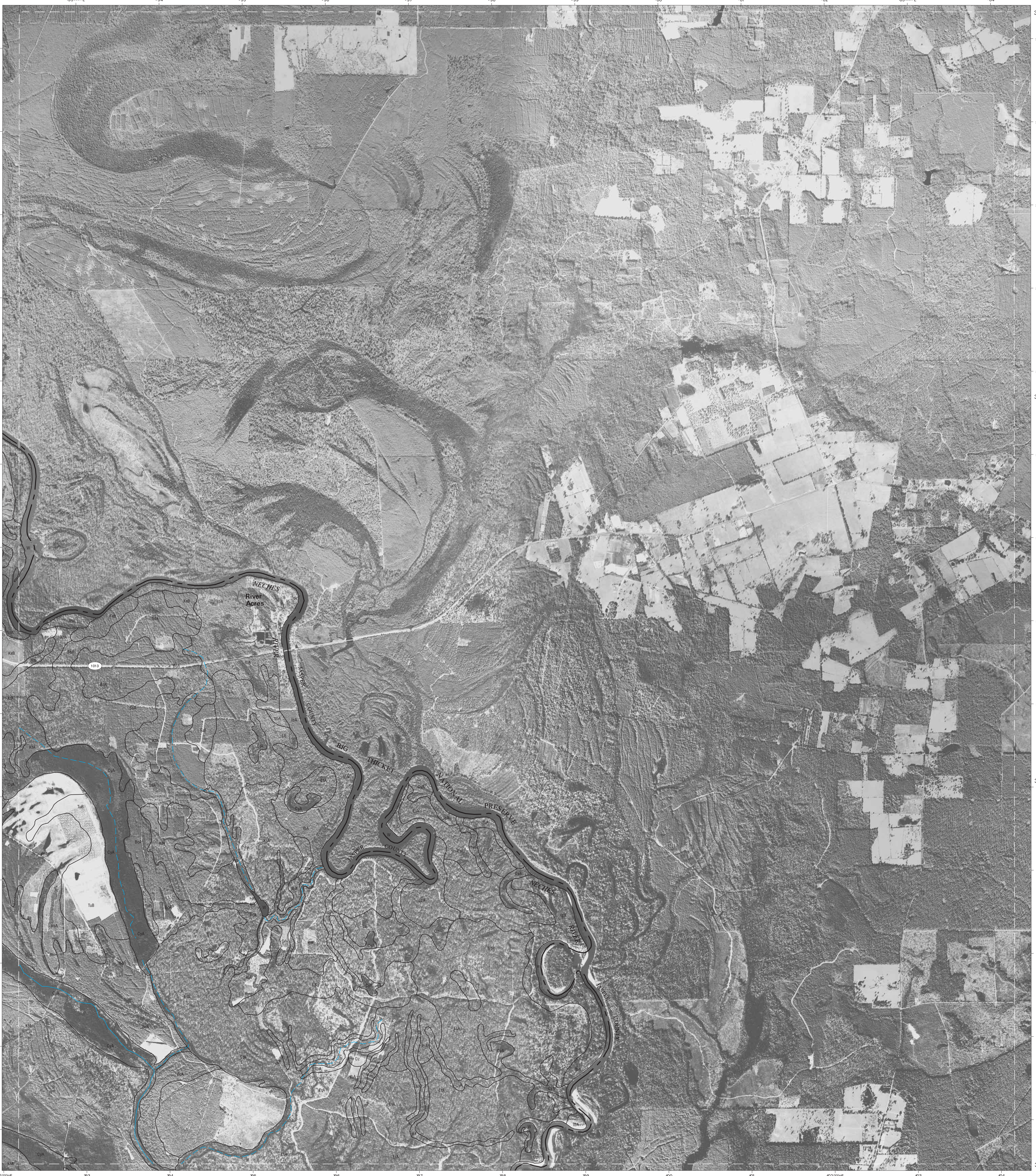
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
MAGNOLIA SPRINGS QUADRANGLE
SHEET NUMBER 19 OF 24

94° 07′30″ | 94° 05′00″ | 94° 02′30″ | 94° 00′00″

30° 45′00″ | 30° 42′30″ | 30° 40′00″ | 30° 37′30″



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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

14		
18	19	
23	24	

14 TOWN BLUFF
18 SPURGER
23 FRED
24 POTATO PATCH LAKE

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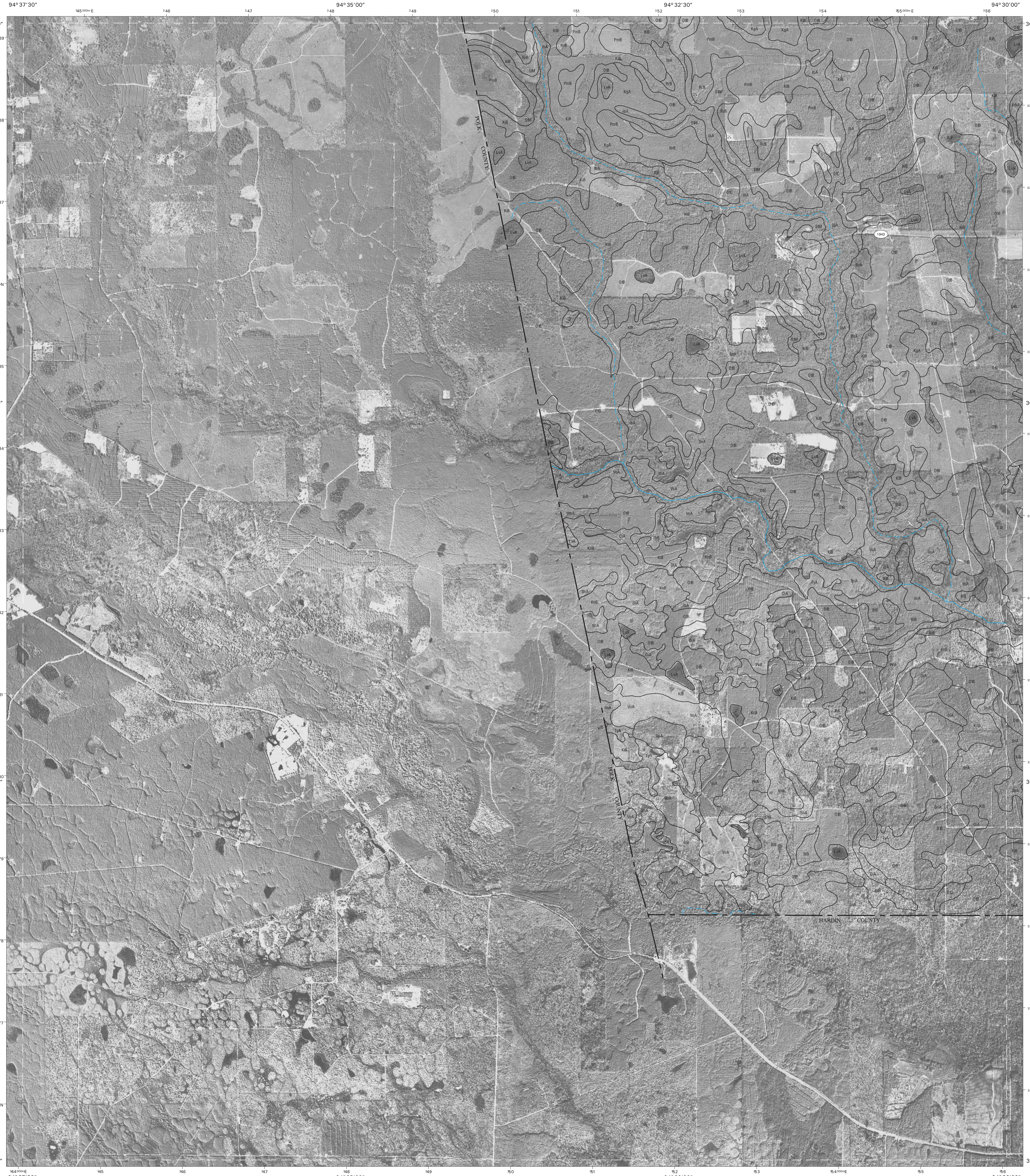
MAGNOLIA SPRINGS, TEXAS
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 24

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
JACKS CREEK SOUTH QUADRANGLE
SHEET NUMBER 20 OF 24



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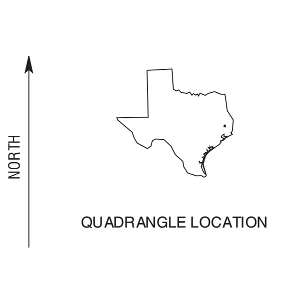

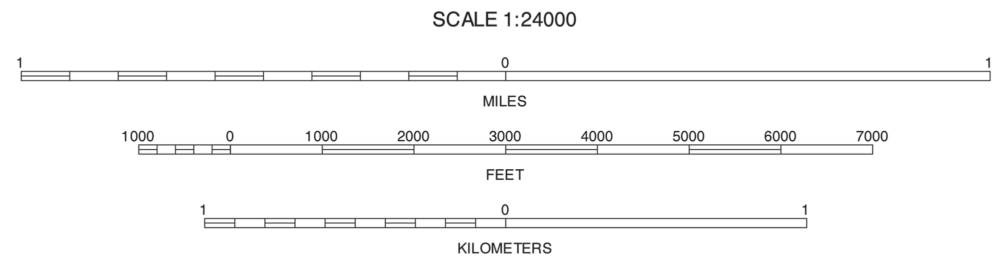

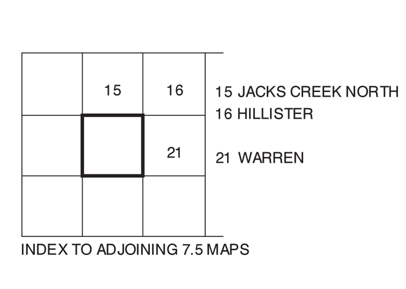

JACKS CREEK SOUTH, TEXAS

7.5 MINUTE SERIES
SHEET NUMBER 20 OF 24

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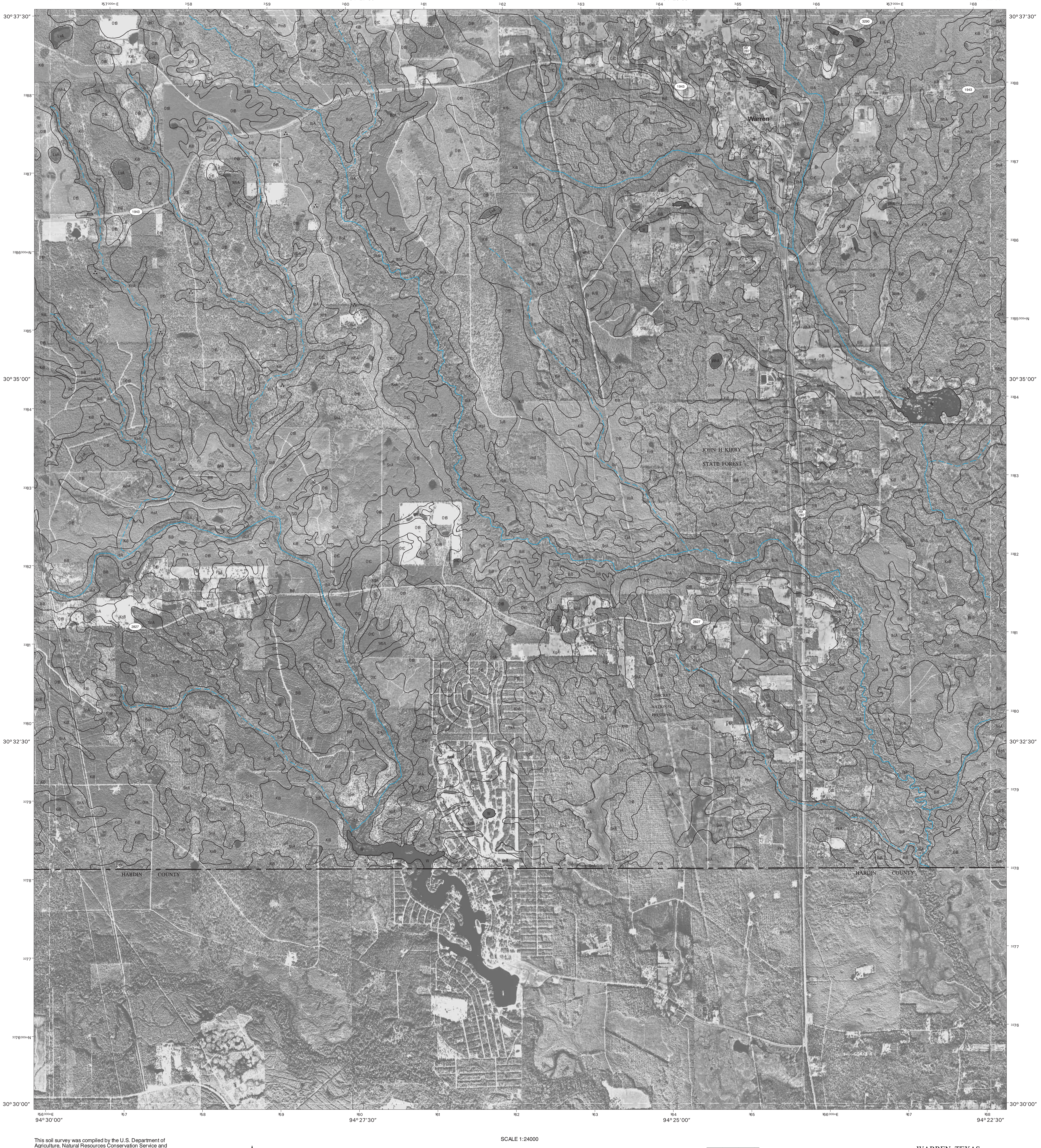
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
WARREN QUADRANGLE
SHEET NUMBER 21 OF 24



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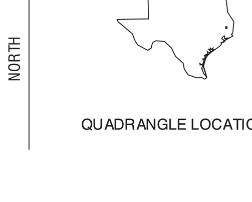

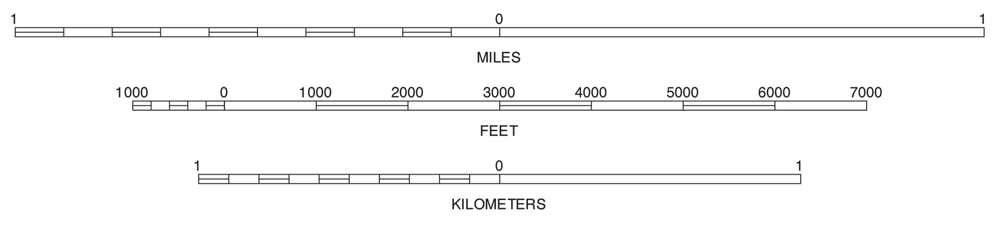

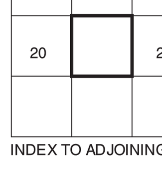

15 JACKS CREEK NORTH
16 HILLISTER
17 KIRKPATRICK LAKE
20 JACKS CREEK SOUTH
22 HICKSBAUGH

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WARREN, TEXAS
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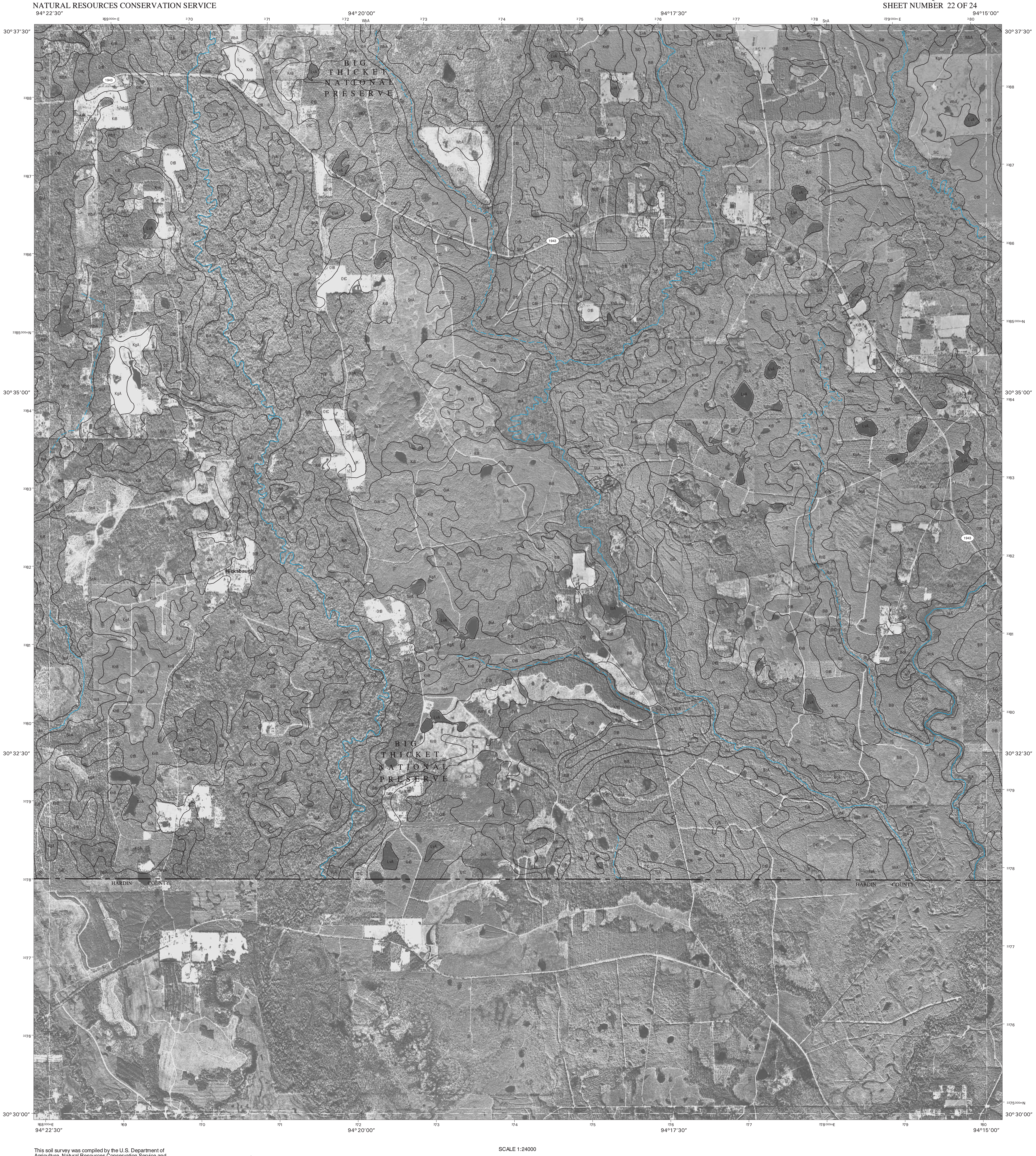
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
HICKSBAUGH QUADRANGLE
SHEET NUMBER 22 OF 24



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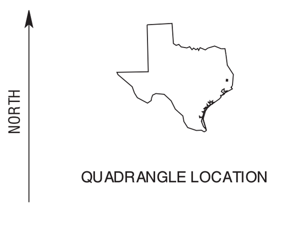
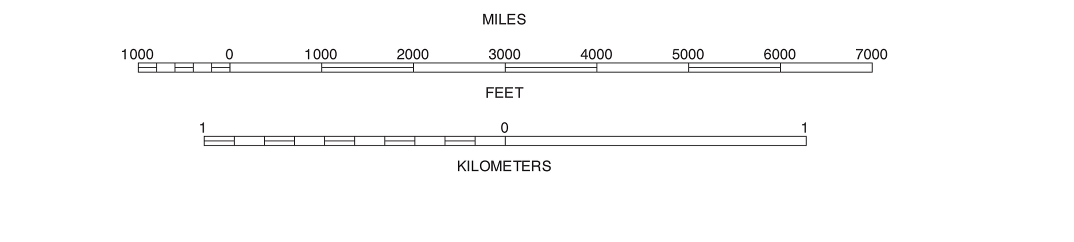
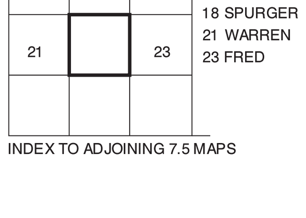


QUADRANGLE LOCATION

SCALE 1:24000





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UNITED STATES
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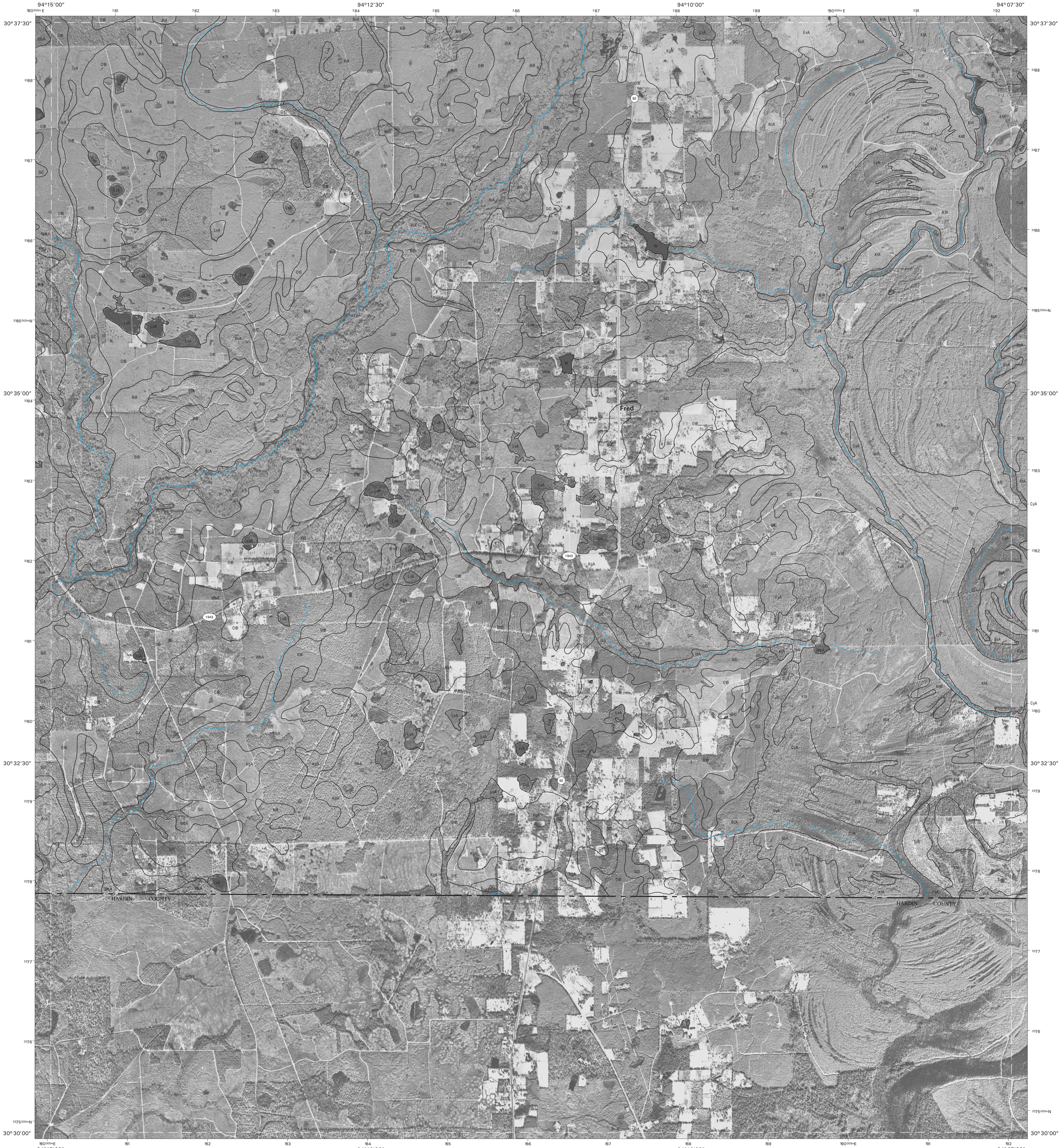
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
FRED QUADRANGLE
SHEET NUMBER 23 OF 24



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

17	18	19
22		24

17 KIRKPATRICK LAKE
18 SPURGER
19 MAGNOLIA SPRINGS
22 HICKSBAUGH
24 POTATO PATCH LAKE

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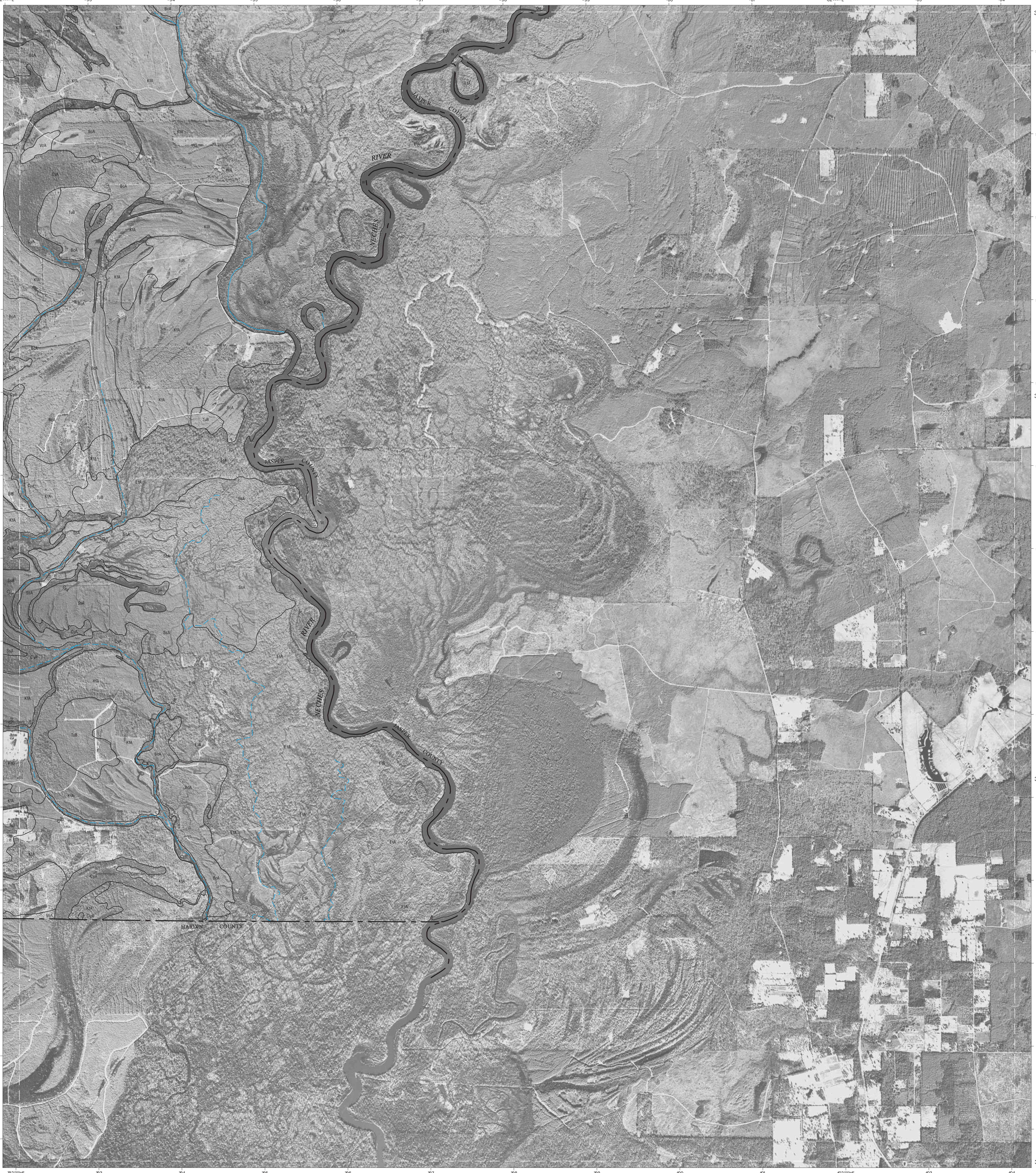
NATURAL RESOURCES CONSERVATION SERVICE

TYLER COUNTY, TEXAS
POTATO PATCH LAKE QUADRANGLE
SHEET NUMBER 24 OF 24



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1000-meter ticks: Universal Transverse Mercator, zone 15.
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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

18	19	
23		

18 SPURGER
19 MAGNOLIA SPRINGS
23 FRED

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POTATO PATCH LAKE, TEXAS
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